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Ontario Hydro-Electric Power Commission
1925-1929
[Secretary's Record]

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HYDRO-ELECTRIC INQUIRY COMMISSION

GENERAL REPORT

WASDELL'S SYSTEM

JOSEPH H. W. BOWER
SECRETARY

WASDELL'S SYSTEM

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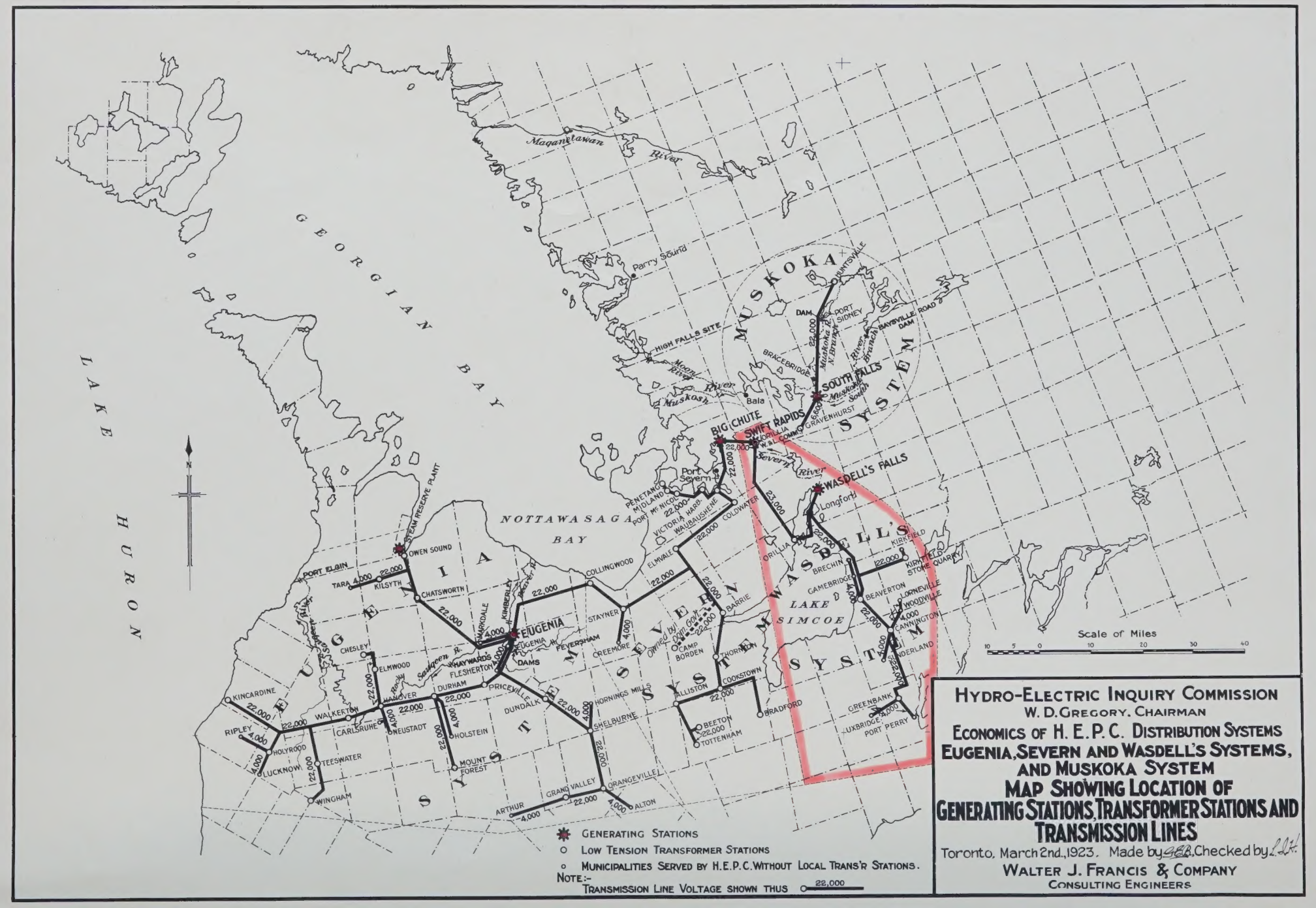
LAKE HURON
GEORGIAN BAY
NOTTAWASAGA BAY
Magantawan River
Parry Sound
HIGH FALLS SITE
Moon River
Muskosh River
Bala
MUSKOKA SYSTEM
DAM
HUNTSVILLE
PORT SIDNEY
BAYSVILLE ROAD
Muskoka R. North Branch
Muskoka River South Branch
BRACEBRIDGE
SOUTH FALLS
GRAVENHURST
BIG CHUTE
SWIFT RAPIDS
ORILLIA
W.L. COMMY
Severn River
WASDELL'S FALLS
Longford
ORILLIA
KIRKFIELD
KIRKFIELD STONE QUARRY
BRECHIN
GAMEBRIDGE
BEAVERTON
LAKE SIMCOE
WASDELL'S SYSTEM
Port Severn
PENETANG
MIDLAND
PORT McNICOLL
VICTORIA HARB.
WAUBAUSHENE
COLDWATER
ELMVALE
COLLINGWOOD
STAYNER
CREEMORE
BARRIE
Dept. of Gov't Ordnance
CAMP BORDEN
THORNTON
CANNINGTON
SUTTON
KESWICK
SUTTON WEST
JACKSONVILLE
SUNDERLAND
CAMERON
CANNINGTON
LAKEFIELD
GREENBANK
LUXBRIDGE
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SEVERN SYSTEM
COOKSTOWN
ALLISTON
BEETON
TOTTENHAM
BRADFORD
HORNINGS MILLS
SHELBURNE
DUNDALK
PRICEVILLE
FLESHERTON
WHAYWARD'S
EUGENIA
EUGENIA DAMS
KIMBERLEY
MARSDALE
STEAM RESERVE PLANT
OWEN SOUND
PORT ELGIN
TARA
KILSYTH
CHATSWORTH
EUGENIA SYSTEM
CHESLEY
ELMWOOD
Saugeen R.
Rocky River
HANOVER
DURHAM
WALKERTON
CARLSRUHE
NEUSTADT
HOLSTEIN
MOUNT FOREST
KINCARDINE
RIPLEY
HOLYROOD
TEESWATER
LUCKNOW
WINGHAM
ARTHUR
GRAND VALLEY
ORANGEVILLE
ALTON
Scale of Miles
10 5 0 10 20 30 40
GENERATING STATIONS
LOW TENSION TRANSFORMER STATIONS
MUNICIPALITIES SERVED BY H.E.P.C. WITHOUT LOCAL TRANS'R STATIONS.
NOTE:- TRANSMISSION LINE VOLTAGE SHOWN THUS 22,000
HYDRO-ELECTRIC INQUIRY COMMISSION
W. D. GREGORY, CHAIRMAN
ECONOMICS OF H. E. P. C. DISTRIBUTION SYSTEMS
EUGENIA, SEVERN AND WASDELL'S SYSTEMS, AND MUSKOKA SYSTEM
MAP SHOWING LOCATION OF GENERATING STATIONS, TRANSFORMER STATIONS AND TRANSMISSION LINES
Toronto, March 2nd., 1923. Made by J.S.B. Checked by L.D.H.
WALTER J. FRANCIS & COMPANY
CONSULTING ENGINEERS

HYDRO-ELECTRIC INQUIRY COMMISSION
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on the

WANDELL'S SYSTEM

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Reserve for Renewals
Reserve for Sinking Fund
Reserve for Contingencies
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Results of Operation
Sale of Power to the Severn System
Sale of Power to Companies
Rural Lines
Agreements with Orillia
Power Data
Population Served
Growth of Market, Ultimate Sources of Supply.
Horse-Power Developed, etc.
Power Situation

Map Showing Location of
COPY
Wandell's System

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HYDRO-ELECTRIC INQUIRY COMMISSION
W. D. GREGORY, CHAIRMAN

ECONOMICS OF H.E.P.C. DISTRIBUTION SYSTEM
EUGENIA, SEVERN AND WASDELL'S SYSTEMS
AND MUSKOKA SYSTEM

MAP SHOWING LOCATION OF
GENERATING STATIONS, TRANSFORMER STATIONS AND
TRANSMISSION LINES

Toronto, March 2nd, 1923. Made by [illegible] Checked [illegible]

WALTER J. FRANCIS & COMPANY
CONSULTING ENGINEERS

Scale of Miles
0 10

GEORGIAN BAY

LAKE HURON

* GENERATING STATIONS
○ LOW TENSION TRANSFORMER STATIONS
◦ MUNICIPALITIES SERVED BY H.E.P.C. WITHOUT LOCAL TRANSFORMER STATIONS.

NOTE:-
TRANSMISSION LINE VOLTAGE SHOWN THUS 60,000

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Toronto, Ontario.
May 29th, 1923.

Hydro-Electric Inquiry Commission,
W. D. Gregory, Esq., Chairman,
TORONTO - ONTARIO.

Re: General Report - Wasdell's System.

Mr. Chairman and Gentlemen:

In accordance with your instructions, a general report on the Wasdell's System has been made, along the lines approved of by the Commission on January 2nd. The work has been done under my direct personal supervision as per your instructions.

No public hearing was held in reference to this system, consequently the figures quoted and statements made have all been obtained from the Auditor's and Consulting Engineer's reports, yearly reports and files of the Hydro-Electric Power Commission of Ontario and other official documents having a definite bearing on the system.

COPY

The report falls naturally into two parts. The first part includes sections entitled "Historical", "Physical", "General Economics" and "General Relations". These sections are largely a recital of facts, but in addition comment has been introduced in order that the statements made may be clearly understood. The second part of the report entitled "Summary" is intended to direct attention to those points which appear to require special consideration by the Commission.

Particular attention is directed to a sub-section of the report entitled "Addenda" which deals with the revision recently made in the reserve for renewals account.

All figures used in this report have been carefully checked by a representative of Messrs. Price, Waterhouse & Company. Reports forming the basis of this report are appended hereto and in order to facilitate reference to the documents in question, on the right hand margin of the report throughout will be found abbreviated references.

Yours very truly,

J. W. Bowen
SECRETARY

JHWB:HM.

Hydro-Electric Inquiry Commission
Copy for Enclosure to

Toronto, Ontario.
May 29th, 1923.

Hydro-Electric Inquiry Commission,
E. B. Gregory, Esq., Chairman,
TORONTO - ONTARIO.

Re: Wentworth Report - Waddell's System.

Gentlemen and Commissioner:

In accordance with your instructions, a general report on the Waddell's System has been made, along the lines approved of by the Commission on January 2nd. The work has been done under my direct personal supervision as per your instructions.

No public hearing was held in reference to this system, consequently the figures quoted and statements made have all been obtained from the Auditor's and Counsulting Engineer's reports, Power Commission reports and files of the Hydro-Electric Power Commission of Ontario and other official documents having a definite bearing on the system.

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Yours very truly,

COPY

SUPERVISOR

DMB:MS.

HYDRO-ELECTRIC INQUIRY COMMISSION
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WASDELL'S SYSTEM

CHRONOLOGICAL CHART

The following chronological chart has been prepared for the purpose of showing the beginning and development of the system:

1911

A number of municipalities in Ontario County held meetings for the purpose of investigating the demand for electrical power in the district.

1912

June — Resolutions passed by the Councils of the various municipalities requesting the Commission to send engineers to survey the situation and report on the feasibility of a water power development to serve the municipalities interested with power.

Engineers of the Commission made investigations and decided that Wasdell's Falls on the Severn River was the best location for the development plant.

August — Estimates submitted to municipalities by the Commission.

November — By-laws passed by the municipalities of Beaverton, Brechin, Cannington, Sunderland and Woodville.

1913

March 10 — Municipality of Cannington entered into an agreement to take 175 horse-power.

March 20 — Municipality of Beaverton entered into an agree-

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NIAGARA'S STATUS

CHRONOLOGICAL CHART

The following chronological chart has been prepared for the purpose of showing the beginning and development of the system:

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1912

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Engineers of the Commission made investigations and decided that Wendell's Falls on the Severn River was the best location for the development plant.

August — Estimates submitted to municipalities by the Commission.

November — By-laws passed by the municipalities of Beaverton, Brooklin, Cannington, Manchester and Woodville.

1913

March 10 — Municipality of Cannington entered into an agreement to take 148 horse-power.

March 20 — Municipality of Beaverton entered into an agreement to take 148 horse-power.

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1 9 1 3

March 20	ment to take 250 horse-power.
April 2	Municipality of Brechin entered into an agreement to take 50 horse-power.
April 21	Order-in-Council authorizing the development of Wasdell's Falls passed.
	Purchase by Commission of site at Wasdell's Falls for $8,200.00.
August 15	Municipality of Sunderland entered into an agreement to take 80 horse-power.
August 15	Municipality of Woodville entered into an agreement to take 70 horse-power.

1 9 1 4

October 6	Wasdell's development placed in operation.
October 6	The municipalities of Beaverton and Cannington commenced taking power.
October 16	The municipality of Sunderland commenced taking power.
October 19	The municipality of Woodville commenced taking power.
December 19	The municipality of Brechin commenced taking power.

COPY

1 9 1 5

April 8	By-law and agreement of municipality of Brechin confirmed by Legislature.
June 7	The township of Rama passed by-law granting the right-of-way to the Orillia Water, Light and Power Commission for the purpose of serving Longford Mills with power.
June 17	The Commission inaugurated a campaign to re-appeal by-law passed by Rama township on June 7th and to prevent the right-of-way being granted to the Orillia Water, Light and Power Commission through the township of Mara.

Hydro-Electric Inquiry Commission
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1923

March 30 ... work to take 250 horse-power.

April 2 ... Municipality of Brooklin entered into an agreement to take 50 horse-power.

April 21 ... Order-in-Council authorizing the development of Vandeli's Falls granted.

... Purchase by Commission of site at Vandeli's Falls for $8,300.00.

August 10 ... Municipality of Tumberland entered into an agreement to take 30 horse-power.

August 13 ... Municipality of Woodville entered into an agreement to take 70 horse-power.

1924

October 6 ... Vandeli's development placed in operation.

October 6 ... The municipalities of Beaverton and Cannington commenced buying power.

October 16 ... The municipality of Tumberland commenced taking power.

October 19 ... The municipality of Woodville commenced taking power.

December 19 ... The municipality of Brooklin commenced taking power.

1925

April 8 ... By-law and agreement of municipality of Brooklin confirmed by legislature.

June 7 ... The township of Yana passed by-law granting the right-of-way to the Orillia Water, Light and Power Commission for the purpose of carrying Longford Mills wish power.

June 17 ... The Commission instructed a canvass to re-appeal by-law passed by Yana township on June 7th and to proceed the right-of-way being granted to the Orillia Water, Light and Power Commission through the township of Mara.

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1916

May 22 — Town of Orillia submit to electors by-law re sale of Orillia Water, Light & Power Commission to Commission resulting in a vote of 79 for and 313 against.

July 24 — The Wasdell's System commenced the sale of power to the Severn System.

August 15 — The Commission entered into an agreement to supply the Orillia Water, Light & Power Commission with power during the construction of the latter's new plant at Swift Rapids.

October 6 — Tie line connecting Severn System at Collingwood with Eugenia System put in operation.

December 15 — The Commission entered into an agreement with the Orillia Water, Light & Power Commission to purchase power at $8.00 per horsepower.

1917

June — The hamlet of Lambridge commenced taking power.

COPY

Extensions made to supply farms out of Cannington on Cannington-Woodville line.

1918

Construction work commenced on the Wasdell's Rural Lines in Thorah township in the vicinity of Beaverton and also in Brock township east of Sunderland.

1919

Extension made to rural lines west of Sunderland.

November 28 — The Commission entered into an agreement to supply power to the municipal corporation of the township of Eldon.

December 9 — The Commission and the Orillia Water, Light & Power Commission entered into a reciprocal agreement re the purchase and sale of surplus power from either System at one-quarter cent (¼¢) per k.w.h.

1920

January 6 — By-law passed by municipality of Uxbridge.

January 9 — By-law passed by municipality of Port Perry.

Township of Eldon agreed to sell power to the Crushed Stone Co., Ltd., at Kirkfield under a five year contract.

HYDRO-ELECTRIC INQUIRY COMMISSION
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1912

May 22 Town of Orillia enabls to elsctors by-law re sale of Orillia Water, Light & Power Commission to Commission consisting in a vote of 79 for and 812 against.

July 24 The Wandell's Rapids commenced the sale of power to the Hydro System.

August 12 The Commission entered into an agreement to supply the Orillia water, Light & Power Commission with power during the construction of the Isabar's Mar plant at Swift Rapids.

October 8 The line connecting Severn System at Coldwater with Thornia System put in operation.

December 12 The Commission entered into an agreement with the Orillia Water, Light & Power Commission re purchase power at $6.00 per horsepower.

1913

June The Penetang-Midland line commenced taking power.

Extensions made to supply Terms one of Cannington on Cannington-Woodville line.

1914

Construction work commenced on the Wandell's Rapids Plant in Thorah township in the vicinity of Manvation and also in Brock township onto of Mandaryland.

1915

November 20 The Commission entered into an agreements to supply power to the municipal corporation of the township of Mideon.

December 9 The Commission and the Orillia water, Light & Power Commission entered into a reciprocal agreement to System at one-quarter cent (¼) per K.W.H. the purchase and sale of surplus power from either

1920

January 6 By-law passed by municipality of Uxbridge.

January 9 By-law passed by municipality of Port Perry.

Stone Co." Ltd." as Kirkfield under a five year contract.
Township of Eldon agreed to sell power to the Canada

HYDRO-ELECTRIC INQUIRY COMMISSION
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1 9 2 0 (con't)

February 9 — By-law passed by municipality of Kirkfield.

February 24 — Municipality of Kirkfield entered into an agreement to take 50 horse-power.

March 3 — Municipality of Uxbridge entered into an agreement to take 125 horse-power.

May 4 — Municipality of Port Perry entered into an agreement to take 125 horse-power.

June 4 — By-law and agreement of the township of Eldon, by-law of the township of Eldon covering Police Village of Kirkfield, agreement of Police Village of Kirkfield, by-laws and agreements of the municipalities of Uxbridge and Port Perry, confirmed by Legislature.

June 18 — Municipality of Kirkfield served with power.

Crushed Stone Company, Limited, Kirkfield, served with power.

COPY

October 31 — Reduction of renewal rate from 3½% per annum to 2% per annum to be retroactive from the commencement of operations in 1914 put into effect.

1 9 2 1

May 3 — By-laws of the municipalities of Kirkfield, Uxbridge and Port Perry confirmed by Legislature.

October 31 — Wasdell's Rural Lines included at this date lines operated by Beaverton, Brechin, Sunderland (Brock township) and Woodville.

1 9 2 2

April 28 — Order-in-Council ratifying agreements with the municipalities of Uxbridge, Port Perry and Orillia Water, Light & Power Commission (dated December 9th, 1919) passed.

HYDRO-ELECTRIC INQUIRY COMMISSION
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1920 (cont'd)

February 9 By-law passed by municipality of Kirkfield.

February 24 Municipality of Kirkfield entered into an agreement to take 80 horse-power.

March 3 Municipality of Uxbridge entered into an agreement to take 120 horse-power.

May 4 Municipality of Port Perry entered into an agreement to take 120 horse-power.

June 4 By-law and agreement of the township of Mara, by-law of the township of Eldon covering Police Village of Kirkfield, agreement of Police Village of Kirkfield, by-laws and agreements of the municipalities of Uxbridge and Port Perry, confirmed by Legislature.

June 18 Municipality of Kirkfield served with power.

Dunlop Stone Company, Limited, Kirkfield, served with power.

COPY

October 21 Reduction of removal rate from 8½% per annum to 5% per annum to be retroactive from the commencement of operations in 1919 put into effect.

1921

May 2 By-laws of the municipalities of Kirkfield, Uxbridge and Port Perry confirmed by Legislature.

October 21 Woodall's Rural Lines limited as this date lines operated by Beaverton, Brooklin, Cannington (Brooklin township) and Woodville.

1922

April 28 Order-in-Council ratifying agreements with the municipalities of Uxbridge, Port Perry and Orillia Water, Light & Power Commission (dated December 8th, 1919) passed.

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HISTORICAL SKETCH

September 1 The Commission entered into an agreement with the Orillia Water, Light & Power Commission, whereby 800 horse-power was reserved for the Commission for one year.

September The municipalities of Port Perry and Uxbridge commenced taking power from the Wasdell's System.

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September 1	The Commission entered into an agreement with the Orillia Water, Light & Power Commission, whereby 600 horse-power was reserved for the Commission for one year.
September	The municipalities of Port Perry and Uxbridge commenced taking power from the Wasdell's System.

COPY

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HISTORICAL SKETCH

In 1911 a number of municipalities in Ontario County held meetings for the purpose of ascertaining the feeling of the district in the matter of obtaining a supply of electrical energy from water power development. The municipalities interested at that time were Beaverton, Cannington, Woodville, Sunderland, Brechin, Uxbridge and Port Perry.

Entrance of Hydro-Electric Power Commission

COPY

It was finally decided to apply to the Commission for an investigation of the situation as it then existed, and, in pursuance of this decision, in June 1912, resolutions were passed by the various municipalities requesting the Commission to make a survey. In response to this request, the Commission made an investigation of the possibilities of developing a supply of power for the district, and prepared an estimate of the cost. The result of the survey was the selection of a site at Wasdell's Falls, located on the Severn River, three miles below Lake Couchiching. Estimates of the cost per horse-power were submitted to Beaverton, Brechin, Cannington, Sunderland and Woodville in August, 1912.

H.E.P.C. Report 1912 p. 194

P.W. Mar. 27, S.1.

By-laws were passed by the municipalities of

Hydro-Electric Inquiry Commission
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MUNICIPAL MEETING

In 1913 a number of municipalities in Ontario
County held meetings for the purpose of ascertaining the
feeling of the electors in the matter of obtaining a supply
of electrical energy from water power development. The
municipalities interested at that time were Beaverton,
Canningston, Woodville, Sunderland, Brooklin, Uxbridge and
Port Perry.

Purpose of Hydro-Electric Power Commission

It was finally decided to apply to the Commission
for an investigation of the situation as it then existed.
and, in pursuance of this decision, in June 1913, resolutions
were passed by the various municipalities requesting the
Commission to make a survey. In response to this request,
the Commission made an investigation of the possibilities
of developing a supply of power for the district, and pre-
pared an estimate of the cost. The results of the survey was
the selection of a site at Wardell's Falls, located on the
Scugog River, three miles below Lake Scugog. Estimates
of the cost per horse-power were submitted to Sovereign.

By-laws were passed by the municipalities of
Brooklin, Cannington, Sunderland, and Woodville in August,
1913.

COPY

Report 1913 By. Mar. 31. 1913 p.

HYDRO-ELECTRIC INQUIRY COMMISSION
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Beaverton, Brechin, Cannington, Sunderland and Woodville in November 1912, authorizing the Commission to proceed with the project, and in 1920, Kirkfield, Uxbridge and Port Perry passed by-laws authorizing their municipal councils to make arrangements for receiving power from the Commission. It is to be noted, however, that none of the by-laws, except those passed by Brechin, Kirkfield, Uxbridge and Port Perry, have been ratified by the Legislature as is required by Section 8 of the Power Commission Act. P.W. Mar. 27. S.1. P. 104.

In 1913, the Commission purchased for $8,200.00 property adjoining Wasdell's Falls and commenced the construction of a power development plant, transmission lines and distributing stations. The project was approved by Order-in-Council under the date of April 21st, 1913, as follows:- P.W. p.2.

COPY

"Upon recommendation of the Hydro-Electric Power Commission of Ontario, in that behalf, the Committee of Council advise that pursuant to the provisions of "The Power Commission Act" Chapter 19, 7 Edward VII and amendments thereto, the Commission be authorized to develop the water power known as Wasdells Falls on the Severn River in the Province of Ontario such authority to cover the following matters:

1. The purchase of the Riparian rights necessary for the development.

HYDRO-ELECTRIC INQUIRY COMMISSION
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1. The purchase of the Ripon rights necessary for the development.

authority to cover the following matters:

the Severn River in the Province of Ontario such and amendments thereto, the Commission be authorized to develop the water power known as Wasdells Falls on

of "The Power Commission Act" Chapter 19, 7 Edward VII of Council advise that pursuant to the provisions

Commission of Ontario, in their Report, the Committee

"Upon recommendation of the Hydro-Electric Power

follows:-

Order-in-Council under the date of April 21st, 1913, as

In 1913, the Commission purchased for $8,800.00 property adjoining Wasdells Falls and commenced the construction of a power development plant, transmission lines and distributing stations. The project was approved by as is required by Section 9 of the Power Commission Act.

bridge and Port Perry, have been ratified by the Legislature by-laws, except those passed by Brooklin, Kirkfield, Uxbridge and Port Perry passed by-laws authorizing their municipal with the projects, and in 1920, Kirkfield, Uxbridge and in November 1912, authorizing the Commission to proceed Beaverton, Brooklin, Cannington, Sunderland and Woodville

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2. The purchase of necessary material and equipment for construction of the plant at Wasdells Falls for the generation of electrical energy and its transformation for transmission to the Municipalities in the Cannington and Beaverton Districts.

3. The construction of transmission lines and transformer stations for delivery of power to the Municipalities in the Cannington and Beaverton District, including both low and high tension transmission lines."

Contracts between the Commission and the municipalities were entered into as follows:

Municipality	Date of Contract	H.P.Load	
Beaverton	March 20th, 1913	250	
Brechin	April 2nd, 1913	50	
Cannington	March 10th, 1913	175	P.W.
Sunderland	Aug. 15th, 1913	80	Mar.
Woodville	Aug. 15th, 1913	70	27,
Kirkfield	Feb. 24th, 1920	50	S.1.
Uxbridge	March 3rd, 1920	125	
Port Perry	May 4th, 1920	125	

COPY

As in the case of the by-laws, the only contracts confirmed by Legislature are the ones entered into by the municipalities of Brechin, Kirkfield, Uxbridge and Port Perry. P. 104

Attention is drawn to the fact that in constructing the Wasdell's System, the Commission for the first time in its history became a producer of power, in addition to transmitting it. HEPC. Report 1914 p.48.

Hydro-Electric Inquiry Commission

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2. The purchase of necessary material and equipment for construction of the plans at Sandhills Falls for the generation of electrical energy and its transformation for transmission to the Municipalities in the Dominion and Provincial Districts.

3. The construction of transmission lines and transformer stations for delivery of power to the Municipalities in the Dominion and Provincial Districts, including both low and high tension transmission lines."

Contracts between the Commission and the municipalities were entered into as follows:

Municipality	Date of Contract	K.V.Amps
Beaverton	March 20th, 1913	800
Preston	April 2nd, 1913	50
Cannington	March 10th, 1913	175
Sunderland	Aug. 12th, 1913	60
Woodville	Aug. 14th, 1913	75
Kirkfield	Feb. 24th, 1913	50
Uxbridge	March 3rd, 1913	180
Port Perry	May 6th, 1913	125

COPY

As in the case of the by-laws, the only contracts confirmed by legislature are the ones entered into by the municipalities of Preston, Kirkfield, Uxbridge and Port Perry.

Attention is drawn to the fact that in connecting the Wendall's System, the Commission for the first time in its history became a producer of power, in addition to transmitting it.

P. 106

Mar. 27, 8.1.

P.S. Report 1916 p.48.

HYDRO-ELECTRIC INQUIRY COMMISSION
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The Wasdell's development was placed in operation on October 6th, 1914, the first municipalities served being Beaverton (October 6th), Brechin (December 19th), Cannington (October 6th), Woodville (October 19th) and Sunderland (October 16th). Two substations were constructed, one located at Beaverton which served, in addition to this municipality, the village of Brechin at 4000 volts, the other being located at Cannington and serving, not only this municipality, but also the villages of Woodville and Sunderland at 4000 volts. Power was delivered to the hamlet of Gamebridge from the 4000-volt Brechin line in June 1917. The police village of Kirkfield (Township of Eldon) was added on June 18th, 1920, as was also the Crushed Stone Company, Limited, located in that village, both being supplied from the same substation. In the fall of 1922, the transmission line was extended from Cannington to Greenbank, from which point the municipalities of Uxbridge and Port Perry are now being served by a 4000-volt line out of the Greenbank substation.

HEPC. Report 1914 p.75 p.98 1915 p.121

HEPC. Report 1917 p.161

HEPC. Report 1920 Vol.1 P.125

WJF. p.6.

Although 625 horse-power had been contracted for, it was found the actual demand of the municipalities was not heavy enough to consume more than 25 per cent. of the power capable of being generated at the Wasdell plant (about 860 horse-power). It was quite apparent, therefore, that a heavier load was necessary in order to put

HEPC. Report 1916 p.150 p.151

COPY

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The Wenvoe'li development was placed in operation
on October 6th, 1914, the first municipalities served being Report
Heaverton (October 6th). Brenkin (December 19th), Cemming- 1914
ton (October 6th), Woodville (October 19th) and Sunderland p.75
(October 16th). Two substations were constructed, one p.76
located at Heaverton which served, in addition to this
municipality, the village of Brenkin at 4000 volts. The
other being located at Cemmington and serving, not only
this municipality, but also the villages of Woodville and Report
Sunderland at 6000 volts. Power was delivered to the Bamlet 1917
of Cambridge from the 6000-volt Brenkin line in June 1917. p.167

The police village of Kirkfield (Township of Kilton) was Report
added on June 18th, 1920, as was also the Ornated Stone 1920
Company, Limited, located in that village, both being Vol.I
supplied from the same substation. In the fall of 1922, p.188
the transmission line was extended from Cemmington to
Greenbank, from which point the municipalities of Uxbridge
and Port Perry are now being served by a 6000-volt line p.6.
out of the Greenbank substation.

Although 650 horse-power had been contracted
for, it was found the actual demand of the municipalities Report
was not nearly enough to consume more than 25 per cent. of 1916
the power capable of being generated at the Wendell plant p.150
(about 1800 horse-power). It was quite apparent, there- p.151
fore, that a heavier load was necessary in order to put

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the system on a more economical basis. The Severn System was in need of additional power so the excess capacity, over that which was required for serving the Wasdell's System, was utilized to take care of the increased power demand of the municipalities of the Severn System. This was accomplished by building a tie line between the power house and the Orillia substation at Longford. The balance of the circuit was completed by the existing Orillia line via the Orillia transforming and switching stations and the Big Chute plant. After parallel operation was commenced on July 24th, 1916, the Wasdell's power house supplied an average load of 750 horse-power continuously throughout the balance of the year, and continued to supply varying amounts during the succeeding years.

HEPC Report 1916 p.150.

COPY

On October 6th, 1916, there was put in operation a tie line connecting the Severn System at Collingwood with the Eugenia plant, so that power from the Wasdell's plant can be supplied to the Eugenia System.

HEPC Report 1916 p.151.

Rural Lines

It was not until 1917 that any work was done in this connection. In that year service extensions were made supplying light and power to farms out of Cannington and on the Cannington-Woodville 4000-volt line.

HEPC Report 1917 Vol.1. p.160

HYDRO-ELECTRIC INQUIRY COMMISSION
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and on the Bannington-Woodville 4000-volt line.

made supplying light and power to farms out of Bramington in six connection. In that year service extensions were

It was not until 1917 that any work was done

Rural lines

plans can be supplied to the Magenta System.

with the Magenta plant, no more than Wembly's

a six line connecting the Govan System at Coldingwood

On October 6th, 1919, there was put in operation during the succeeding year.

balance of the year, and continued to supply varying amounts average load of 150 horse-power continuously throughout the July 24th, 1918, the Company's power house supplying an big Ganto plant. After careful operation was commenced on via the Orillia transmission and switching stations and the of the circuit was completed by the existing Orillia line power and the Orillia substation at Bentley. The balance was accomplished by building a six line between the power demand of the municipalities of the Severn System. This system, one million to take care of the increased power over that which was required for serving the Wembly's was in need of additional power as the season developed,

the system on a more economical basis. The Severn System

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In 1918 a rural line was constructed in Brock Township east from Sunderland giving service to four farms and in the same year a new line was constructed and placed in operation in Thorah Township for the purpose of serving summer cottages at Cedarhurst and Maple Beach in the vicinity of Beaverton. HEPC. Report 1918 Vol.1. p.258

In 1919 an extension to the existing rural lines in Brock Township was arranged for and completed for the purpose of serving seven farms west of the village of Sunderland. HEPC Report 1919 Vol.1. p.246.

COPY

As at October 31st, 1921, the Wasdell's rural lines included lines operated by Beaverton, Brechin, Sunderland (Brock Township) and Woodville. These rural lines are operated by municipalities which supply power thereto through their local commissions. Such municipalities collect the revenue from the customers on these rural lines, pay all operating costs and also pay to the Commission interest and sinking fund on the capital invested by it. P.W. p.4.

Municipalities on the System

The "Bulletin", issued by the Commission under date of April, 1923, gives the following list of municipalities:

Beaverton	Mara Township
Brechin	Port Perry
Brock Township	Sunderland
Cannington	Thorah Township
Eldon Township	Uxbridge
Gamebridge	Woodville
Kirkfield	

HYDRO-ELECTRIC INQUIRY COMMISSION
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In 1910 a rural line was constructed in Brock Township east from Sunderland Flying service to Cook's Corners and in the same year a new line was constructed and placed in operation in Thorah Township for the purpose of serving summer cottages at Cedarhurst and Maple Beach in the vicinity of Belwatson.

In 1913 an extension to the existing rural lines in Brock Township was arranged for and completed for the purpose of serving seven farms west of the village of Sunderland.

As at December 31st, 1913, the Hydro's rural line included lines operated by Belwatson, Breadin, Sunderland (Brock Township) and Woodville. There rural lines are operated by municipalities which supply power thereto through their local commissions. Such municipalities collect the revenue from the customers on these rural lines, but all operating costs must also pay to the Commission interest and sinking fund on the capital invested by it.

Municipalities on the System

The "Bulletin", issued by the Commission under date of April, 1923, gives the following list of municipalities:

Belwatson	Mara Township
Breadin	Port Perry
Brock Township	Sunderland
Cannington	Thorah Township
Gideon Township	Uxbridge
Gamebridge	Woodville
Kirkfield	

COPY

p.220
Vol.I.
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1913
Mara

p.220.
Vol.I.
Report
1913
Mara

p.4.
P.U.

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P H Y S I C A L

General Description of the System

The Wasdell's System lies east of the Severn System and embraces a narrow strip east and south of Lake Simcoe. The only power development on the system is at Wasdell's Falls on the Severn River, a short distance from its source at Lake Couchiching. The Swift Rapids plant of the Orillia Water, Light & Power Commission is about fifteen miles further down the River and the Big Chute plant of the Severn System is about eight miles down stream from the Swift Rapids' development, being only a short distance from the mouth of the Severn. The transmission system extends roughly fifty miles north and south.

COPY

Generating Station

The hydro-electric plant at Wasdell's Falls was the first plant constructed by the Commission and it was put into service on October 6th, 1914. The drainage area above the development is 2,075 square miles, and the water storage is 16,500 million cubic feet. The mean head at the turbines is 12 feet and the minimum head is 9 feet. A concrete dam 110 feet long and 18 feet high was con-

HYDRO-ELECTRIC INQUIRY COMMISSION
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APPENDIX.

General Description of the System

The Wendell's System lies east of the Severn System and embraces a narrow strip east and south of Lake Simcoe. The only power development on the system is at Wendell's Falls on the Severn River, a short distance from its source at Lake Gloucheking. The next Rapids plant of the Orillia Water, Light & Power Commission is about fifteen miles further down the River and the Big Chute plant of the Trent System is about eight miles down stream from the Swift Rapids' development, being only a short distance from the mouth of the Severn. The transmission system extends roughly fifty miles north and south.

Generation Station

The hydro-electric plant at Wendell's Falls was the first plant constructed by the Commission and it was put into service on October 6th, 1914. The drainage area above the development is 2,070 square miles, and the water storage is 18,300 million cubic feet. The mean head at the turbines is 32 feet and the minimum head is 9 feet. A concrete dam 710 feet long and 18 feet high was con-

COPY

p. 32.
p. 6
& 7.

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structed across the river and the power house forms a continuation of the dam. WJF. p.9.

Two vertical shaft turbine units of 600 horse-power each supplied by the Boving Company of Canada, Toronto, for $21,900.00, are coupled to two 400- K.V.A., three-phase, 60-cycle , 2,300-volt vertical generators. WJF. p.9.

The capacity of this plant is approximately 860 horse-power at 80 per cent. power factor in accordance with the rating of the Commission. WJF. p.9.

Tie Lines

COPY

The tie lines joining the Wasdell's System to the Severn System and to the Orillia Commission's System make it possible for either of these systems to deliver power to the Wasdell's System, but the amount of surplus power available from the other systems is small and very uncertain. WJF. p.10.

Undeveloped Power Sites.

There are no undeveloped power sites on the Wasdell's System which have sufficient capacity to warrant their development, and when the demand on the system exceeds the capacity of the present development, power must be developed at or purchased from some source outside the boundaries of the Wasdell's System. WJF. p.13.

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COPY

stretched across the river and the power house forms a
continuation of the dam. p.9.

Two vertical shaft turbine units of 600 horse-
power each supplied by the Boving Company of Canada,
Toronto, for $21,900.00, are coupled to two 600- K.V.A.,
three-phase, 60-cycle, 2,300volt vertical generators. p.9.

The capacity of this plant is approximately
660 horse-power at 80 per cent. Power factor is accordance
with the rating of the Commission. p.9.

The Line

The line joining the Woodall's System to
the Dorsey System and to the Grillia-Commission's System
make it possible for either of these systems to deliver
power to the Woodall's System, and the amount of surplus
power available from the other systems is small and very
uncertain. p.10.

Undeveloped Power Sites.

There are no undeveloped power sites on the
Woodall's System which have sufficient capacity to warrant
their development, and when the demand on the system exceeds
the capacity of the present developments, power must be de-
veloped at or purchased from some source outside the
borrowaries of the "Woodall's System.

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Miscellaneous Power Plants

The only power development of any kind on the system, other than the development at Wasdell's Falls, is the hydro-electric development at Swift Rapids owned by the Orillia Water, Light & Power Commission. This development, and the town of Orillia, which it supplies, are within the boundaries of the system, but do not form a part of it. For some years the Orillia Commission purchased power from the Big Chute plant of the Severn System in accordance with a contract made with the Simcoe Railway and Power Company which constructed and owned the Big Chute plant and from whom it was purchased by the Power Commission. At the present time the Orillia Commission has some surplus power which may be purchased by the Power Commission either for the Severn System or the Wasdell's System.

COPY

WJF. p.13.

A description of the Swift Rapids plant is given on pages 13 and 14 of our Consulting Engineer's report.

Transmission Lines

Up to October 31st, 1921, the Commission had constructed on the Wasdell's System 78.7 miles of transmission and distribution lines; of these 25.3 miles of 4000-volt lines distribute power from the high voltage

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Miscellaneous Power Plants

The only power development of any kind on the system, other than the development at Wardell's Falls, is the hydro-electric development at Dutch Empire owned by the Orillia Water, Light & Power Commission. This development, and the town of Orillia, which it supplies, are within the boundaries of the system, but do not form a part of it. For some years the Orillia Commission purchased power from the Big Chute plant of the Severn System in accordance with a contract made with the Simcoe Railway and Power Company which constructed and owned the Big Chute plant and from which it was purchased by the Severn Commission. As the present time the Orillia Commission has some surplus power which may be purchased by the Power Commission either for the Severn System or the Wardell's System.

A description of the Dutch Empire plant is given on pages 15 and 16 of our Consulting Engineer's report.

Transmission Lines

Up to October 31st, 1921, the Commission had constructed on the Wardell's System 78.7 miles of transmission and distribution lines of these 52.9 miles of 4000-volt lines distribute power from the high voltage

COPY

p.13.

HYDRO-ELECTRIC INQUIRY COMMISSION
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distributing stations to the smaller municipalities and the rural lines; the remaining 55.4 miles are operated at 22,000 volts and form a network supplying the larger municipalities , and also connecting together for parallel operation, the generating stations of the Wasdell's, Severn and Eugenia System and the Swift Rapids station of the Orillia Water, Light & Power Commission.

The transmission system is constructed on wooden poles throughout and presents no extraordinary features. Extensions estimated to cost about $120,000.00 for 1922 and $55,000.00 for 1923 are said to be contemplated, covering stations and lines to supply Uxbridge and Port Perry, and for miscellaneous improvements and for considerable extensions to the rural lines. WJF. p.15.

COPY

Transforming & Distributing Stations

The transmission lines feed the various municipalities at low voltage through three substations, a list of which is shown on page 15 of the report of our Consulting Engineer.

Local Distributing Systems

With the exception of the rural lines there are no municipalities on the system in which the Commission distributes retail power to consumers. The Commission acts

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distributing stations to the smaller municipalities and the rural lines; the remaining 33.4 miles are operated at 22,000 volts and form a network supplying the larger municipalities, and also connecting together for parallel operation, the generating stations of the Montreal's, Beauharnois and the Swift Rapids station of the Gatineau Power, Light & Power Commission.

The transmission system is constructed on wooden poles throughout and presents no extraordinary features. Extensions estimated to cost about $130,000.00 for 1928 and $30,000.00 for 1929 are said to be contemplated, serving stations and towns to supply Uxbridge and Port Perry, and for miscellaneous improvements and for commercial extensions to the rural lines.

p.15.

Transformer & Distribution Stations

The transmission lines feed the various municipalities at low voltage through three substations, a list of which is shown on page 13 of the report of our Consulting Engineer.

Local Distribution Systems

With the exception of the rural lines there are no municipalities on the system in which the Commission distributes retail power to consumers. The Commission sells

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as a wholesale distributor only and in all the municipalities the electricity is distributed by the municipality itself or by local commission in the municipalities. It is understood that the accounting for all of the municipalities of the Wasdell's System is done in accordance with the standard accounting system of the Commission, and the details for the various municipalities are given in the Annual Reports. WJF. p.15 & 16.

Parallel Operation of Wasdell's, Severn, Eugenia and Orillia Systems

COPY

In order to make the excess power of the Wasdell's System available for the Severn System, a tie line was constructed in 1916 connecting the Wasdell's transmission system to the lines of the Orillia Water, Light and Power Commission at Longford, there being already a tie line between the Orillia System and the Big Chute plant of the Severn System. Parallel operation of the Wasdell's and Severn Systems has been continued over the lines of the Orillia Commission since the date of connection, July 24th, 1916. A tie line 24 miles long connecting the Eugenia System with the Severn System at Collingwood was completed and put into service in October, 1916, paralleling the Wasdell's, Severn and Eugenia Systems. When the Swift Rapids plant of the Orillia Commission was put into service at the end of 1917, the tie line between the

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service at the end of 1917, the tie line between the Rapids plant of the Orillia Commission was put into Wendell's, Severn and Muskoka Systems. When the Swift and put into service in October, 1918, paralleling the System with the Severn System at Gaylineood was completed 1918. A tie line 24 miles long connecting the Eugenia Orillia Commission since the date of connection, July 26th, Severn System has been continued over the lines of the Severn and Muskoka Systems. Parallel operation of the Wendell's and Severn System. Parallel operation of the Wendell's and between the Orillia System and the Big Chute plant of the Commission at Langford, there being already a tie line System to the Ilton of the Orillia Water, Light and Power extended in 1918 connecting the Wendell's transmission

COPY

In order to make the owners Power of the Wendell's System available for the Severn System, a tie line was con-

Parallel Operation at Wendell's.

Severn, Wendell and Orillia Systems

for the various municipalities are given in the annual Reports.

A 16.
p.18
A12.

standard accounting system of the Commission, and the costs of the Wendell's System is done in accordance with the stood that the accounting for all of the municipalities or by local commission in the municipalities. It is understhe electricity is distributed by the municipality itself as a wholesale distributor only and in all the municipalities

HYDRO-ELECTRIC INQUIRY COMMISSION
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Big Chute plant on the Severn System and the Ragged Rapids plant of the Orillia Commission was replaced by a tie line between the Big Chute plant and the new development at Swift Rapids. Of the transmission lines joining the Wasdell's and Big Chute developments, the Power Commission owns the section from the Wasdell's Falls station to Longford, and from Swift Rapids to Big Chute, the intervening section extending from Longford to the Swift Rapids station being the property of the town of Orillia. WJF. p.10.

When power is to be transferred from the Wasdell's System to the Severn System, it is delivered by the Wasdell's System to the Orillia Commission at Longford where it is metered, and the Orillia Commission delivers an equal amount from the Swift Rapids plant to the Severn System, this power being metered at Swift Rapids.

COPY

When the connection was first made between the Wasdell's Falls generating station and the Orillia System at Longford, the Orillia Commission was short of power and was making very heavy demands on the Severn System. The Wasdell's System, therefore, delivered its excess power to the Orillia Commission and the Orillia Commission credited the Severn System with an equal amount of power. During November and December, 1917, while the Orillia Commission was transferring its source of supply to the new plant at Swift Rapids and abandoning the old plant at Ragged Rapids,

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Swift Rapids and abandoning the old plant at Rapid Rapids. was transferring its rights of supply to the new plant at Rapids of the Orillia Commission was replaced by a tie line between the Big Chute plant and the new development at and Big Chute development, the Power Commission owns the section from the Wandell's falls extension to Longford, and from Swift Rapids to Big Chute. the intervening section extending from Longford to the Swift Rapids extension being the property of the town of Orillia.

p.10.
WWW.

When power is to be transferred from the Wandell's system to the Severn System, it is delivered by the Wandell's system to the Orillia Commission at Longford where it is metered, and the Orillia Commission delivers an equal amount from the Swift Rapids plant to the Severn System, this power being metered at Swift Rapids.

COPY

When the connection was first made between the Wandell's Falls generating station and the Orillia system at Longford, the Orillia Commission was short of power and was making very heavy demands on the Severn System. The Wandell's System, therefore, delivered its excess power to the Orillia Commission and the Orillia Commission credited the Severn System with an equal amount of power. During November and December, 1917, while the Orillia Commission was transferring its source of supply to the new plant at

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which had been rendered useless on account of Trent Canal improvements, the demand of the Orillia Commission on the Severn System exceeded 2,000 horse-power, and a considerable portion of this amount was supplied by the Wasdell's System. In the records of the Power Commission, the power from the Wasdell's System is considered to be supplied to the Severn System, and from it delivered to the Orillia Commission. The Severn System for some years purchased large amounts of power from the Eugenia System and the Wasdell's System, but by the end of the fiscal year 1921 the Eugenia System required the full output of the Eugenia Falls development and there was no surplus power for the Severn System. However, the Wasdell's System has still a few hundred horse-power available for the Severn System and the new plant at Swift Rapids not only supplies the total demands of the Orillia System, but has some surplus power which may be purchased by the Severn System. Any power which the Wasdell's System delivers to the Orillia Commission at Longford is delivered by the Swift Rapids plant to the Big Chute plant, and no charge is made for this interchange of power between the systems of the Power Commission due to parallel operation. Power from the Orillia Commission is only paid for by the Power Commission when it is specifically ordered, and all power specifically ordered over and above the amount which Wasdell's delivers to Orillia is paid for at the rate of one-quarter of a cent per kilowatt-hour.

COPY

WJF. p.11.

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Original

one-quarter of a cent per kilowatt-hour.

Wardell's deliveries to Orillia is paid for at the rate of power specifically ordered over and above the amount which Power Commission when it is specifically ordered, and all power from the Orillia Commission is only paid for by the systems of the Power Commission due to partial operation. and no charge is made for this interchange of power between Byster delivers to the Orillia Commission at Longford is delivered by the Swift Rapids plant to the Big Chute plant. ohased by the Severn System. Any power which the Wardell's Orillia System, but has none surplus power which may be par- ...ly. Swift Rapids not only supplies the total demands of the power available for the Severn System and the new plants at Nowever, the Wardell's System has still a few hundred horse- ment and there was developing power for the Severn System. System required the full output of the Eugenia Falls power- Eugenia, but by the end of the fiscal year 1931 the Wardell's amounts of power from the Hagaeth System and the Wardell's Severn System. The Severn System for some years purchased large ion. and from it delivered to the Orillia Commis- Wardell's System is considered to be supplied to the In the records of the Power Commission, the power from the portion of this amount was supplied by the Wardell's System. Severn System exceeded 3,000 horse-power, and a considerable improvement". The demand of the Orillia Commission on the which had been rendered useless on account of Trent Canal

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The parallel operation of these four plants has given very satisfactory service to the four systems concerned. The high head and large storage capacity of the Eugenia development make it very efficient as a peak load plant, and it is possible for it to draw power from the Severn System and conserve the water above the Eugenia development to be used during the period of peak load on the combined systems.

These plants serve that section of the Province of Ontario which lies between Port Perry and Uxbridge in Ontario County on the extreme east, and Tara and Kincardine in Bruce County on the extreme west, comprising two-thirds of Ontario County, a small portion of Victoria County, all of Simcoe County, Dufferin County, Grey County and Bruce County, and a small portion of the northern sections of Wellington and Huron Counties. WJF. p.12

COPY

A map showing the location of generating stations, transformer stations and transmission lines in the system forms the frontispiece of this report.

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The parallel operation of these four plants has given very satisfactory service to the four systems concerned. The high head and large storage capacity of the Nipissing development makes it very efficient as a peak load plant, and it is possible for it to draw power from the Severn System and conserve the water above the Nipissing developments to be used during the period of peak load on the combined systems.

These plants serve that section of the Province of Ontario which lies between Lake Huron and Georgian Bay on the north, Lake Ontario on the east, Lake Erie on the south, comprising two-thirds of Ontario County, a small portion of Victoria County, all of Simcoe County, Dufferin County, Grey County and Bruce County, and a small portion of the northern counties of Wellington and Huron County.

p.13
with.

A map showing the location of generating stations, transformer stations and transmission lines in the system forms the frontispiece of this report.

COPY

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GENERAL ECONOMICS

Capital Investment

Pursuant to authority conferred by Order-in-Council of the Province of Ontario, the Commission purchased property adjoining Wasdell's Falls from Adam Dobson of Cannington for the sum of $8,200.00 in 1913, and undertook the construction of a hydro-electric development plant to supply power to the Beaverton and Cannington district.

COPY

At October 31st, 1921, the Commission had an investment in the works of the Wasdell's System of $335,382.00 comprising the following:

Power Development	$141,885.00	
Wood Pole Lines	154,189.00	
Transformer Stations	26,909.00	P.W.
Rural Lines	12,399.00	p.5.
	$335,382.00	

The investment in the power development of $141,885.00 as above is represented by:

Lands and Water Rights	$8,140.00	
Dams and Water Structures	19,083.00	
Power House	50,118.00	W.J.P.
Equipment	64,544.00	p.23
	$141,885.00	

From the above it will be noted that the investment in the system does not include any amount for intangibles.

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GENERAL ENGINEERING

Capital Investment

Pursuant to authority conferred by Order-in-Council of the Province of Ontario, the Commission purchased properly adjoining Dundalk's Falls from Adam Dobson of Flamborough for the sum of $8,500.00 in 1912, and undertook the construction of a hydro-electric development plant to supply power to the Beaverton and Dunnington districts.

As October 31st, 1921, the Commission had an investment in the works of the Dundalk's System of $232,302.00 comprising the following:

Power Development	$141,882.00
Wood Pole Lines	134,182.00
Transformer Stations	56,302.00
Rural Lines	13,936.00
	$346,302.00

The investment in the power development of $141,882.00 as above is represented by:

Lands and Water Rights	$3,160.00
Dams and Water Structures	13,082.00
Power House	30,112.00
Equipment	94,528.00
	$141,882.00

From the above it will be noted that the investment in the system does not include any amount for insurance.

HYDRO-ELECTRIC INQUIRY COMMISSION
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As at October 31st, 1921, the engineers of the Commission estimated that additional funds of $120,000.00 and of $35,000.00 would be required for the system during 1922 and 1923 to be expended as follows:

Particulars	Year ending October 31st, 1922	1923	
Stations and lines from Uxbridge to Port Perry	$55,500.00	-	
Miscellaneous betterments	10,000.00	$10,000.00	P.W.
Rural Expenditures	54,500.00	25,000.00	p.7.
	$120,000.00	$35,000.00	

If these proposed expenditures are carried out the investment in the system at the close of the fiscal year 1923 will be approximately $490,000.00 of which $92,000.00 will be represented by rural lines, a portion of which the Commission will doubtless recommend to be charged against the Province in accordance with the provisions of the Rural Hydro-Electric Distribution Act, 1921.

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The following table indicates the capital costs per rated horse-power for the years 1914 to 1921 inclusive: WJF. p.27 & 29.

	Years ending October 31st, 1914	1915	1916	1917	1918	1919	1920	1921
Power Development	$151.20	$154.50	$158.90	$162.70	$163.40	$163.70	$164.80	$165.00
Transmission Lines	109.40	110.70	133.00	128.20	128.50	128.20	178.70	179.30
Transformer & distributing Stations	4.00	15.60	15.80	16.90	17.10	17.10	30.50	31.30
Rural Lines	-	-	-	-	5.10	9.00	13.10	14.40
Total -	$244.60	$280.80	$307.70	$307.80	$314.10	$318.00	$387.10	$390.00

COPY FOR ENCLOSURE TO
HYDRO-ELECTRIC INQUIRY COMMISSION

As at October 31st, 1921, the engineers of the Commission estimated that additional funds of $120,000.00 and of $38,000.00 would be required for the system during 1922 and 1923 to be expended as follows:

Particulars	Year ending October 31st, 1922	1923	
Stations and lines from Oxbridge to Port Perry	$38,800.00	-	
Miscellaneous betterments	10,000.00	$10,000.00	p.8.
Rural Expenditures	50,800.00	28,000.00	p.7.
	$120,000.00	$38,000.00	

If these proposed expenditures are carried out the investment in the equipment of the plans of the fiscal year 1923 will be approximately $430,000.00 of which $82,000.00 will be represented by rural lines, a portion of which the Commission will undertake recommend to be charged against the Provinces in accordance with the provisions of the Rural Hydro-Electric Distribution Act, 1921.

The following table indicates the capital costs with per rated horse-power for the years 1914 to 1921 inclusive: p.37 & 39.

Years ending October 31st.

	1914	1915	1916	1917	1918	1919	1920	1921
Power Development	$	$	$	$	$	$	$	$
Transmission								
Distribution-								
Substations	6.00	13.60	13.80	16.20	17.10	17.10	20.30	21.30
Rural Lines	-	-	-	-	-	8.10	9.00	12.10	14.40
Total -	$6.00	$13.60	$13.80	$16.20	$17.10	$25.20	$29.30	$33.40

HYDRO-ELECTRIC INQUIRY COMMISSION

COPY FOR ENCLOSURE TO

It will be seen from the above that the capital costs per rated horse-power increased in each of the years from 1914 to 1921.

Reserve for Renewals

The balance in the reserve for renewals account at October 31st, 1921, amounted to $38,973.73, comprising the following:

Period	Annual Accrual based upon 2% of the Capital Investment	Interest at 4%	Together
1915 to October 31,1916	$ 9,522.91	$ 180.70	$9,703.61
Fiscal year ending October 31, 1917	5,259.68	388.14	5,647.82
1918	5,315.37	614.05	5,929.42
1919	5,315.30	851.23	6,166.53
1920	5,938.36	1,097.88	7,036.24
1921	6,449.28	1,379.34	7,828.62
Together	$37,800.90	$4,511.34	$42,312.24

COPY

Deduct

Cost of new ventilator and roof	$243.27	
Replacement of cross-arms, etc.	474.26	
Reserve accrued on steel cable replaced	1,810.45	P.W. p.12
Cost of rotary pump, complete	350.10	
Reserve applicable to equipment transferred	265.10	
	$3,143.18	
Interest applicable to above charges	195.33	3,338.51
Balance at October 31, 1921		$38,973.73

The reserve for renewals has been provided through the inclusion in the cost of power to the municipalities

HYDRO-ELECTRIC INQUIRY COMMISSION
COPY FOR ENCLOSURE TO

It will be seen from the above that the capital costs per rated horse-power increased in each of the years from 1916 to 1921.

Reserve for Renewals

The balance in the reserve for renewals as October 31st, 1921, amounted to $28,272.76, comprising the following:

Period	Annual Journal Based upon 3% of the Capital Investment	Interest at 4% Compounded	Together
1918 to October 31,1918	$ 3,532.31	$ 106.70	$3,705.81
Fiscal year ending October 31. 1919	7,065.00	318.60	7,383.60
1920	10,597.50	1,062.00	11,659.50
1921	14,130.00	2,332.95	16,462.95
	17,662.50	3,968.55	21,631.05
	21,195.00	6,054.60	27,249.60
	24,727.50	8,592.30	33,319.80
	28,260.00	11,582.80	39,842.80
	31,792.50	15,027.80	46,820.30
	35,325.00	18,928.80	54,253.80
	38,857.50	23,287.80	62,145.30
	42,390.00	28,106.80	70,496.80
	45,922.50	33,387.80	79,310.30
	49,455.00	39,132.80	88,587.80
	52,987.50	45,343.80	98,331.30
	56,520.00	52,022.80	108,542.80
	60,052.50	59,171.80	119,224.30
	63,585.00	66,792.80	130,377.80
	67,117.50	74,887.80	142,005.30
	70,650.00	83,457.80	154,107.80
	74,182.50	92,504.80	166,687.30
	77,715.00	102,030.80	179,745.80
	81,247.50	112,037.80	193,285.30
	84,780.00	122,527.80	207,307.80
	88,312.50	133,502.80	221,815.30
	91,845.00	144,964.80	236,809.80
	95,377.50	156,915.80	252,293.30
	98,910.00	169,357.80	268,267.80
	102,442.50	182,292.80	284,735.30
	105,975.00	195,722.80	301,697.80
	109,507.50	209,649.80	319,157.30
	113,040.00	224,075.80	337,115.80
	116,572.50	239,002.80	355,575.30
	120,105.00	254,432.80	374,537.80
	123,637.50	270,367.80	394,005.30
	127,170.00	286,809.80	413,979.80
	130,702.50	303,761.80	434,464.30
	134,235.00	321,224.80	455,459.80
	137,767.50	339,201.80	476,969.30
	141,300.00	357,693.80	498,993.80
	144,832.50	376,703.80	521,536.30
	148,365.00	396,232.80	544,597.80
	151,897.50	416,282.80	568,180.30
	155,430.00	436,855.80	592,285.80
	158,962.50	457,953.80	616,916.30
	162,495.00	479,578.80	642,073.80
	166,027.50	501,732.80	667,760.30
	169,560.00	524,416.80	693,976.80
	173,092.50	547,632.80	720,725.30
	176,625.00	571,382.80	748,007.80
	180,157.50	595,668.80	775,826.30
	183,690.00	620,491.80	804,181.80
	187,222.50	645,853.80	833,076.30
	190,755.00	671,755.80	862,510.80
	194,287.50	698,199.80	892,487.30
	197,820.00	725,186.80	923,006.80
	201,352.50	752,718.80	954,071.30
	204,885.00	780,796.80	985,681.80
	208,417.50	809,422.80	1,017,840.30
	211,950.00	838,597.80	1,050,547.80
	215,482.50	868,323.80	1,083,806.30
	219,015.00	898,602.80	1,117,617.80
	222,547.50	929,436.80	1,151,984.30
	226,080.00	960,826.80	1,186,906.80
	229,612.50	992,774.80	1,222,387.30
	233,145.00	1,025,281.80	1,258,426.80
	236,677.50	1,058,349.80	1,295,027.30
	240,210.00	1,091,980.80	1,332,190.80
	243,742.50	1,126,175.80	1,369,918.30
	247,275.00	1,160,936.80	1,408,211.80
	250,807.50	1,196,265.80	1,447,073.30
	254,340.00	1,232,164.80	1,486,504.80
	257,872.50	1,268,634.80	1,526,507.30
	261,405.00	1,305,677.80	1,567,082.80
	264,937.50	1,343,295.80	1,608,233.30
	268,470.00	1,381,490.80	1,649,960.80
	272,002.50	1,420,264.80	1,692,267.30
	275,535.00	1,459,619.80	1,735,154.80
	279,067.50	1,499,557.80	1,778,625.30
	282,600.00	1,540,080.80	1,822,680.80
	286,132.50	1,581,190.80	1,867,323.30
	289,665.00	1,622,889.80	1,912,554.80
	293,197.50	1,665,179.80	1,958,377.30
	296,730.00	1,708,062.80	2,004,792.80
	300,262.50	1,751,540.80	2,051,803.30
	303,795.00	1,795,615.80	2,099,410.80
	307,327.50	1,840,289.80	2,147,617.30
	310,860.00	1,885,564.80	2,196,424.80
	314,392.50	1,931,442.80	2,245,835.30
	317,925.00	1,977,925.80	2,295,850.80
	321,457.50	2,025,015.80	2,346,473.30
	324,990.00	2,072,715.80	2,397,705.80
	328,522.50	2,121,027.80	2,449,550.30
	332,055.00	2,169,953.80	2,502,008.80
	335,587.50	2,219,495.80	2,555,083.30
	339,120.00	2,269,655.80	2,608,775.80
	342,652.50	2,320,435.80	2,663,088.30
	346,185.00	2,371,837.80	2,718,022.80
	349,717.50	2,423,864.80	2,773,582.30
	353,250.00	2,476,518.80	2,829,768.80
	356,782.50	2,529,801.80	2,886,584.30
	360,315.00	2,583,716.80	2,944,031.80
	363,847.50	2,638,265.80	3,002,113.30
	367,380.00	2,693,451.80	3,060,831.80
	370,912.50	2,749,277.80	3,120,190.30
	374,445.00	2,805,745.80	3,180,190.80
	377,977.50	2,862,858.80	3,240,836.30
	381,510.00	2,920,619.80	3,302,129.80
	385,042.50	2,979,031.80	3,364,074.30
	388,575.00	3,038,098.80	3,426,673.80
	392,107.50	3,097,823.80	3,489,931.30
	395,640.00	3,158,209.80	3,553,849.80
	399,172.50	3,219,259.80	3,618,432.30
	402,705.00	3,280,976.80	3,683,681.80
	406,237.50	3,343,364.80	3,749,602.30
	409,770.00	3,406,427.80	3,816,197.80
	413,302.50	3,470,168.80	3,883,471.30
	416,835.00	3,534,591.80	3,951,426.80
	420,367.50	3,599,700.80	4,020,068.30
	423,900.00	3,665,499.80	4,089,399.80
	427,432.50	3,731,992.80	4,159,425.30
	430,965.00	3,799,183.80	4,230,148.80
	434,497.50	3,867,076.80	4,301,574.30
	438,030.00	3,935,676.80	4,373,706.80
	441,562.50	4,004,987.80	4,446,550.30
	445,095.00	4,075,013.80	4,520,108.80
	448,627.50	4,145,758.80	4,594,386.30
	452,160.00	4,217,227.80	4,669,387.80
	455,692.50	4,289,424.80	4,745,117.30
	459,225.00	4,362,354.80	4,821,579.80
	462,757.50	4,436,021.80	4,898,779.30
	466,290.00	4,510,430.80	4,976,720.80
	469,822.50	4,585,586.80	5,055,409.30
	473,355.00	4,661,494.80	5,134,849.80
	476,887.50	4,738,159.80	5,215,047.30
	480,420.00	4,815,585.80	5,296,005.80
	483,952.50	4,893,778.80	5,377,731.30
	487,485.00	4,972,743.80	5,460,228.80
	491,017.50	5,052,486.80	5,543,504.30
	494,550.00	5,133,012.80	5,627,562.80
	498,082.50	5,214,327.80	5,712,410.30
	501,615.00	5,296,437.80	5,798,052.80
	505,147.50	5,379,348.80	5,884,496.30
	508,680.00	5,463,066.80	5,971,746.80
	512,212.50	5,547,598.80	6,059,811.30
	515,745.00	5,632,951.80	6,148,696.80
	519,277.50	5,719,132.80	6,238,410.30
	522,810.00	5,806,149.80	6,328,959.80
	526,342.50	5,894,009.80	6,420,352.30
	529,875.00	5,982,720.80	6,512,595.80
	533,407.50	6,072,290.80	6,605,698.30
	536,940.00	6,162,727.80	6,699,667.80
	540,472.50	6,254,040.80	6,794,513.30
	544,005.00	6,346,237.80	6,890,242.80
	547,537.50	6,439,328.80	6,986,866.30
	551,070.00	6,533,322.80	7,084,392.80
	554,602.50	6,628,228.80	7,182,831.30
	558,135.00	6,724,055.80	7,282,190.80
	561,667.50	6,820,813.80	7,382,481.30
	565,200.00	6,918,513.80	7,483,713.80
	568,732.50	7,017,166.80	7,585,899.30
	572,265.00	7,116,782.80	7,689,047.80
	575,797.50	7,217,373.80	7,793,171.30
	579,330.00	7,318,950.80	7,898,280.80
	582,862.50	7,421,525.80	8,004,388.30
	586,395.00	7,525,110.80	8,111,505.80
	589,927.50	7,629,717.80	8,219,645.30
	593,460.00	7,735,358.80	8,328,818.80
	596,992.50	7,842,046.80	8,439,039.30
	600,525.00	7,949,793.80	8,550,318.80
	604,057.50	8,058,612.80	8,662,670.30
	607,590.00	8,168,515.80	8,776,105.80
	611,122.50	8,279,516.80	8,890,639.30
	614,655.00	8,391,628.80	9,006,283.80
	618,187.50	8,504,865.80	9,123,053.30
	621,720.00	8,619,241.80	9,240,961.80
	625,252.50	8,734,771.80	9,360,024.30
	628,785.00	8,851,470.80	9,480,255.80
	632,317.50	8,969,353.80	9,601,671.30
	635,850.00	9,088,435.80	9,724,285.80
	639,382.50	9,208,732.80	9,848,115.30
	642,915.00	9,330,260.80	9,973,175.80
	646,447.50	9,453,036.80	10,099,484.30
	649,980.00	9,577,077.80	10,227,057.80
	653,512.50	9,702,402.80	10,355,915.30
	657,045.00	9,829,029.80	10,486,074.80
	660,577.50	9,956,977.80	10,617,555.30
	664,110.00	10,086,266.80	10,750,376.80
	667,642.50	10,216,917.80	10,884,560.30
	671,175.00	10,348,952.80	11,020,127.80
	674,707.50	10,482,393.80	11,157,101.30
	678,240.00	10,617,263.80	11,295,503.80
	681,772.50	10,753,586.80	11,435,359.30
	685,305.00	10,891,386.80	11,576,691.80
	688,837.50	11,030,688.80	11,719,526.30
	692,370.00	11,171,518.80	11,863,888.80
	695,902.50	11,313,902.80	12,009,805.30
	699,435.00	11,457,868.80	12,157,303.80
	702,967.50	11,603,444.80	12,306,412.30
	706,500.00	11,750,660.80	12,457,160.80
	710,032.50	11,899,547.80	12,609,580.30
	713,565.00	12,050,138.80	12,763,703.80
	717,097.50	12,202,468.80	12,919,566.30
	720,630.00	12,356,573.80	13,077,203.80
	724,162.50	12,512,490.80	13,236,653.30
	727,695.00	12,670,259.80	13,397,954.80
	731,227.50	12,829,922.80	13,561,150.30
	734,760.00	12,991,523.80	13,726,283.80
	738,292.50	13,155,108.80	13,893,401.30
	741,825.00	13,320,726.80	14,062,551.80
	745,357.50	13,488,427.80	14,233,785.30
	748,890.00	13,658,263.80	14,407,153.80
	752,422.50	13,830,289.80	14,582,712.30
	755,955.00	14,004,562.80	14,760,517.80
	759,487.50	14,181,142.80	14,940,630.30
	763,020.00	14,360,092.80	15,123,112.80
	766,552.50	14,541,479.80	15,308,032.30
	770,085.00	14,725,373.80	15,495,458.80
	773,617.50	14,911,844.80	15,685,462.30
	777,150.00	15,100,966.80	15,878,116.80
	780,682.50	15,292,816.80	16,073,499.30
	784,215.00	15,487,472.80	16,271,687.80
	787,747.50	15,685,015.80	16,472,762.30
	791,280.00	15,885,529.80	16,676,809.80
	794,812.50	16,089,102.80	16,883,915.30
	798,345.00	16,295,823.80	17,094,168.80
	801,877.50	16,505,785.80	17,307,663.30
	805,410.00	16,719,083.80	17,524,493.80
	808,942.50	16,935,816.80	17,744,759.30
	812,475.00	17,156,085.80	17,968,560.80
	816,007.50	17,379,996.80	18,196,004.30
	819,540.00	17,607,657.80	18,427,197.80
	823,072.50	17,839,180.80	18,662,253.30
	826,605.00	18,074,680.80	18,901,285.80
	830,137.50	18,314,276.80	19,144,414.30
	833,670.00	18,558,090.80	19,391,760.80
	837,202.50	18,806,247.80	19,643,450.30
	840,735.00	19,058,875.80	19,899,610.80
	844,267.50	19,316,107.80	20,160,375.30
	847,800.00	19,578,082.80	20,425,882.80
	851,332.50	19,844,945.80	20,696,278.30
	854,865.00	20,116,843.80	20,971,708.80
	858,397.50	20,393,929.80	21,252,327.30
	861,930.00	20,676,359.80	21,538,289.80
	865,462.50	20,964,295.80	21,829,758.30
	868,995.00	21,257,908.80	22,126,903.80
	872,527.50	21,557,375.80	22,429,903.30
	876,060.00	21,862,882.80	22,738,942.80
	879,592.50	22,174,620.80	23,054,213.30
	883,125.00	22,492,790.80	23,375,915.80
	886,657.50	22,817,601.80	23,704,259.30
	890,190.00	23,149,269.80	24,039,459.80
	893,722.50	23,488,020.80	24,381,743.30
	897,255.00	23,834,090.80	24,731,345.80
	900,787.50	24,187,724.80	25,088,512.30
	904,320.00	24,549,178.80	25,453,498.80
	907,852.50	24,918,717.80	25,826,570.30
	911,385.00	25,296,616.80	26,208,001.80
	914,917.50	25,683,162.80	26,598,080.30
	918,450.00	26,078,654.80	26,997,104.80
	921,982.50	26,483,405.80	27,405,388.30
	925,515.00	26,897,741.80	27,823,256.80
	929,047.50	27,322,004.80	28,251,052.30
	932,580.00	27,756,551.80	28,689,131.80
	936,112.50	28,201,756.80	29,137,869.30
	939,645.00	28,658,010.80	29,597,655.80
	943,177.50	29,125,722.80	30,068,900.30
	946,710.00	29,605,320.80	30,552,030.80
	950,242.50	30,097,252.80	31,047,495.30
	953,775.00	30,601,988.80	31,555,763.80
	957,307.50	31,120,021.80	32,077,329.30
	960,840.00	31,651,867.80	32,612,707.80
	964,372.50	32,198,068.80	33,162,441.30
	967,905.00	32,759,191.80	33,727,096.80
	971,437.50	33,335,829.80	34,307,267.30
	974,970.00	33,928,599.80	34,903,569.80
	978,502.50	34,538,144.80	35,516,647.30
	982,035.00	35,165,132.80	36,147,167.80
	985,567.50	35,810,259.80	36,795,827.30
	989,100.00	36,474,249.80	37,463,349.80
	992,632.50	37,157,855.80	38,150,488.30
	996,165.00	37,861,861.80	38,858,026.80
	999,697.50	38,587,083.80	39,586,781.30
	1,003,230.00	39,334,369.80	40,337,599.80
	1,006,762.50	40,104,604.80	41,111,367.30
	1,010,295.00	40,898,707.80	41,909,002.80
	1,013,827.50	41,717,645.80	42,731,473.30
	1,017,360.00	42,562,429.80	43,579,789.80
	1,020,892.50	43,434,124.80	44,455,017.30
	1,024,425.00	44,333,849.80	45,358,274.80
	1,027,957.50	45,262,780.80	46,290,738.30
	1,031,490.00	46,222,154.80	47,253,644.80
	1,035,022.50	47,213,274.80	48,248,297.30
	1,038,555.00	48,237,507.80	49,276,062.80
	1,042,087.50	49,296,295.80	50,338,383.30
	1,045,620.00	50,391,152.80	51,436,772.80
	1,049,152.50	51,523,670.80	52,572,823.30
	1,052,685.00	52,695,522.80	53,748,207.80
	1,056,217.50	53,908,473.80	54,964,691.30
	1,059,750.00	55,164,382.80	56,224,132.80
	1,063,282.50	56,465,207.80	57,528,490.30
	1,066,815.00	57,813,015.80	58,879,830.80
	1,070,347.50	59,209,980.80	60,280,328.30
	1,073,880.00	60,658,388.80	61,732,268.80
	1,077,412.50	62,160,647.80	63,238,060.30
	1,080,945.00	63,719,301.80	64,800,246.80
	1,084,477.50	65,337,024.80	66,421,502.30
	1,088,010.00	67,016,637.80	68,104,647.80
	1,091,542.50	68,761,117.80	69,852,660.30
	1,095,075.00	70,573,610.80	71,668,685.80
	1,098,607.50	72,457,450.80	73,556,058.30
	1,102,140.00	74,416,190.80	75,518,330.80
	1,105,672.50	76,453,603.80	77,559,276.30
	1,109,205.00	78,573,808.80	79,683,013.80
	1,112,737.50	80,781,251.80	81,893,989.30
	1,116,270.00	83,080,759.80	84,197,029.80
	1,119,802.50	85,477,562.80	86,597,365.30
	1,123,335.00	87,977,397.80	89,100,732.80
	1,126,867.50	90,586,600.80	91,713,468.30
	1,130,400.00	93,312,268.80	94,442,668.80
	1,133,932.50	96,162,201.80	97,296,134.30
	1,137,465.00	99,145,599.80	100,283,064.80
	1,140,997.50	102,272,562.80	103,413,560.30
	1,144,530.00	105,554,090.80	106,698,620.80
	1,148,062.50	109,002,683.80	110,150,746.30
	1,151,595.00	112,632,342.80	113,783,937.80
	1,155,127.50	116,458,470.80	117,613,598.30
	1,158,660.00	120,497,258.80	121,655,918.80
	1,162,192.50	124,766,451.80	125,928,644.30
	1,165,725.00	129,285,369.80	130,451,094.80
	1,169,257.50	134,075,827.80	135,245,085.30
	1,172,790.00	139,161,118.80	140,333,908.80
	1,176,322.50	144,566,000.80	145,742,323.30
	1,179,855.00	150,317,700.80	151,497,555.80
	1,183,387.50	156,445,000.80	157,628,388.30
	1,186,920.00	162,979,300.80	164,166,220.80
	1,190,452.50	169,954,600.80	171,145,053.30
	1,193,985.00	177,407,900.80	178,601,885.80
	1,197,517.50	185,378,200.80	186,575,718.30
	1,201,050.00	193,906,500.80	195,107,550.80
	1,204,582.50	203,035,800.80	204,240,383.30
	1,208,115.00	212,811,100.80	214,019,215.80
	1,211,647.50	223,279,400.80	224,491,048.30
	1,215,180.00	234,490,700.80	235,705,880.80
	1,218,712.50	246,497,000.80	247,715,713.30
	1,222,245.00	259,352,300.80	260,574,545.80
	1,225,777.50	273,112,600.80	274,338,378.30
	1,229,310.00	287,835,900.80	289,065,210.80
	1,232,842.50	303,582,200.80	304,815,043.30
	1,236,375.00	320,413,500.80	321,649,875.80
	1,239,907.50	338,393,800.80	339,633,708.30
	1,243,440.00	357,588,100.80	358,831,540.80
	1,246,972.50	378,063,400.80	379,310,373.30
	1,250,505.00	399,888,700.80	401,139,205.80
	1,254,037.50	423,135,000.80	424,389,038.30
	1,257,570.00	447,875,300.80	449,132,870.80
	1,261,102.50	474,185,600.80	475,446,703.30
	1,264,635.00	502,144,900.80	503,409,535.80
	1,268,167.50	531,835,200.80	533,103,368.30
	1,271,700.00	563,341,500.80	564,613,200.80
	1,275,232.50	596,751,800.80	598,027,033.30
	1,278,765.00	632,157,100.80	633,435,865.80
	1,282,297.50	669,651,400.80	670,933,698.30
	1,285,830.00	709,331,700.80	710,617,530.80
	1,289,362.50	751,297,000.80	752,586,363.30
	1,292,895.00	795,649,300.80	796,942,195.80
	1,296,427.50	842,493,600.80	843,790,028.30
	1,299,960.00	891,937,900.80	893,237,860.80
	1,303,492.50	944,093,200.80	945,396,693.30
	1,307,025.00	999,074,500.80	1,000,381,525.80
	1,310,557.50	1,057,000,800.80	1,058,311,358.30
	1,314,090.00	1,118,000,100.80	1,119,314,190.80
	1,317,622.50	1,182,207,400.80	1,183,525,023.30
	1,321,155.00	1,249,760,700.80	1,251,081,855.80
	1,324,687.50	1,320,801,000.80	1,322,125,688.30
	1,328,220.00	1,395,641,300.80	1,396,969,520.80
	1,331,752.50	1,474,441,600.80	1,475,773,353.30
	1,335,285.00	1,557,341,900.80	1,558,677,185.80
	1,338,817.50	1,644,493,200.80	1,645,832,018.30
	1,342,350.00	1,736,057,500.80	1,737,399,850.80
	1,345,882.50	1,832,207,800.80	1,833,553,683.30
	1,349,415.00	1,933,128,100.80	1,934,477,515.80
	1,352,947.50	2,039,013,400.80	2,040,366,348.30
	1,356,480.00	2,150,069,700.80	2,151,426,180.80
	1,360,012.50	2,266,515,000.80	2,267,875,013.30
	1,363,545.00	2,388,579,300.80	2,389,942,845.80
	1,367,077.50	2,516,505,600.80	2,517,872,678.30
	1,370,610.00	2,650,549,900.80	2,651,920,510.80
	1,374,142.50	2,791,084,200.80	2,792,458,343.30
	1,377,675.00	2,938,400,500.80	2,939,778,175.80
	1,381,207.50	3,092,815,800.80	3,094,197,008.30
	1,384,740.00	3,254,664,100.80	3,256,048,840.80
	1,388,272.50	3,424,296,400.80	3,425,684,673.30
	1,391,805.00	3,602,082,700.80	3,603,474,505.80
	1,395,337.50	3,788,412,000.80	3,789,807,338.30
	1,398,870.00	3,983,693,300.80	3,985,092,170.80
	1,402,402.50	4,188,356,600.80	4,189,759,003.30
	1,405,935.00	4,402,854,900.80	4,404,260,835.80
	1,409,467.50	4,627,666,200.80	4,629,075,668.30
	1,413,000.00	4,863,284,500.80	4,864,697,500.80
	1,416,532.50	5,110,230,800.80	5,111,647,333.30
	1,420,065.00	5,369,055,100.80	5,370,475,165.80
	1,423,597.50	5,640,338,400.80	5,641,761,998.30
	1,427,130.00	5,924,693,700.80	5,926,120,830.80
	1,430,662.50	6,222,770,000.80	6,224,200,663.30
	1,434,195.00	6,535,257,300.80	6,536,691,495.80
	1,437,727.50	6,862,880,600.80	6,864,318,328.30
	1,441,260.00	7,206,404,900.80	7,207,846,160.80
	1,444,792.50	7,566,645,200.80	7,568,089,993.30
	1,448,325.00	7,944,477,500.80	7,945,925,825.80
	1,451,857.50	8,340,841,800.80	8,342,293,658.30
	1,455,390.00	8,756,733,100.80	8,758,188,490.80
	1,458,922.50	9,193,219,400.80	9,194,678,323.30
	1,462,455.00	9,651,440,700.80	9,652,903,155.80
	1,465,987.50	10,132,612,000.80	10,134,077,988.30
	1,469,520.00	10,638,042,300.80	10,639,511,820.80
	1,473,052.50	11,169,144,600.80	11,170,617,653.30
	1,476,585.00	11,727,401,900.80	11,728,878,485.80
	1,480,117.50	12,314,471,200.80	12,315,951,318.30
	1,483,650.00	12,931,194,500.80	12,932,678,150.80
	1,487,182.50	13,578,554,800.80	13,580,041,983.30
	1,490,715.00	14,257,682,100.80	14,259,172,815.80
	1,494,247.50	14,970,866,400.80	14,972,360,648.30
	1,497,780.00	15,719,509,700.80	15,721,007,480.80
	1,501,312.50	16,505,185,000.80	16,506,686,313.30
	1,504,845.00	17,330,444,300.80	17,331,949,145.80
	1,508,377.50	18,197,016,600.80	18,198,524,978.30
	1,511,910.00	19,106,867,900.80	19,108,379,810.80
	1,515,442.50	20,062,211,200.80	20,063,726,643.30
	1,518,975.00	21,065,321,500.80	21,066,840,475.80
	1,522,507.50	22,118,587,800.80	22,120,110,308.30
	1,526,040.00	23,224,517,100.80	23,226,043,140.80
	1,529,572.50	24,385,742,400.80	24,387,272,973.30
	1,533,105.00	25,605,029,700.80	25,606,562,805.80
	1,536,637.50	26,885,281,000.80	26,886,817,638.30
	1,540,170.00	28,229,545,300.80	28,231,085,470.80
	1,543,702.50	29,640,022,600.80	29,641,565,973.30
	1,547,235.00	31,122,023,900.80	31,123,571,138.80
	1,550,767.50	32,678,125,200.80	32,679,675,968.30
	1,554,300.00	34,312,031,500.80	34,313,585,800.80
	1,557,832.50	36,027,633,800.80	36,029,191,633.30
	1,561,365.00	37,829,015,100.80	37,830,576,465.80
	1,564,897.50	39,720,465,400.80	39,722,030,298.30
	1,568,430.00	41,706,488,700.80	41,708,057,130.80
	1,571,962.50	43,791,813,000.80	43,793,384,963.30
	1,575,495.00	45,981,403,300.80	45,982,978,795.80
	1,579,027.50	48,280,473,600.80	48,282,052,628.30
	1,582,560.00	50,694,497,900.80	50,696,080,460.80
	1,586,092.50	53,229,222,200.80	53,230,808,293.30
	1,589,625.00	55,890,683,500.80	55,892,273,125.80
	1,593,157.50	58,685,217,800.80	58,686,810,958.30
	1,596,690.00	61,619,478,100.80	61,621,074,790.80
	1,600,222.50	64,700,452,400.80	64,702,052,623.30
	1,603,755.00	67,935,475,700.80	67,937,079,455.80
	1,607,287.50	71,332,249,000.80	71,333,856,288.30
	1,610,820.00	74,898,861,300.80	74,900,472,120.80
	1,614,352.50	78,643,804,600.80	78,645,419,953.30
	1,617,885.00	82,576,094,900.80	82,577,712,785.80
	1,621,417.50	86,704,899,200.80	86,706,521,618.30
	1,624,950.00	91,040,144,500.80	91,041,769,450.80
	1,628,482.50	95,592,151,800.80	95,593,780,283.30
	1,632,015.00	100,371,759,100.80	100,373,391,115.80
	1,635,547.50	105,390,347,400.80	105,391,982,948.30
	1,639,080.00	110,659,864,700.80	110,661,503,780.80
	1,642,612.50	116,192,858,000.80	116,194,500,613.30
	1,646,145.00	122,002,501,300.80	122,004,147,445.80
	1,649,677.50	128,102,626,600.80	128,104,276,278.30
	1,653,210.00	134,507,757,900.80	134,509,411,110.80
	1,656,742.50	141,233,145,200.80	141,234,801,943.30
	1,660,275.00	148,294,802,500.80	148,296,463,075.80
	1,663,807.50	155,709,542,800.80	155,711,206,608.30
	1,667,340.00	163,495,020,100.80	163,496,687,440.80
	1,670,872.50	171,669,771,400.80	171,671,442,273.30
	1,674,405.00	180,253,260,700.80	180,254,935,105.80
	1,677,937.50	189,265,923,000.80	189,267,600,860.30
	1,681,470.00	198,729,219,300.80	198,730,900,690.80
	1,685,002.50	208,665,680,600.80	208,667,365,683.30
	1,688,535.00	219,099,014,900.80	219,100,702,450.80
	1,692,067.50	230,053,965,200.80	230,055,657,033.30
	1,695,600.00	241,556,663,500.80	241,558,359,100.80
	1,699,132.50	253,634,496,800.80	253,636,196,633.30
	1,702,665.00	266,316,221,100.80	266,317,923,765.80
	1,706,197.50	279,632,032,400.80	279,633,738,598.30
	1,709,730.00	293,613,633,700.80	293,615,343,430.80
	1,713,262.50	308,294,315,000.80	308,296,028,263.30
	1,716,795.00	323,709,030,300.80	323,710,747,095.80
	1,720,327.50	339,894,481,600.80	339,896,202,928.30

HYDRO-ELECTRIC INQUIRY COMMISSION
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of an annual charge of 3½% on the capital investment, together with interest at 4% per annum on the balance of the reserve to October 31st, 1919. During 1920, upon the advice of its engineers, the Commission reduced the annual renewal rate from 3½% to 2%, while the interest rate of 4% remained unchanged.

The accounts of the Commission were so adjusted that the rate of 2% was made effective from the inception of the system to October 31st, 1919, and this adjustment resulted in a reduction of $20,585.60 in the renewal reserve which has been applied to the following municipalities as a reduction in the cost of power supplied to them during this period:

COPY

Beaverton	$4,786.70
Brechin	3,659.49
Cannington	4,599.05
Sunderland	3,733.72
Woodville	3,806.64
T o t a l -	$20,585.60

P.W. p.13.

The annual rate of 2% was determined by a reclassification of the properties as reflected in the book accounts at October 31st, 1920, made by the Engineering Department of the Commission.

Reserve for Sinking Fund

Under section 23(b) of the Power Commission Act, the Commission is required to provide "an annual sum

HYDRO-ELECTRIC INQUIRY COMMISSION
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Act", the Commission is required to provide "an annual and adequate reserve for sinking fund".

Under section 39(b) of the Power Commission Department at the Commission.

Reserve for Sinking Fund

accounts at October 31st, 1920, made by the Engineering classification of the proportion so realized in the book

The annual rate of 2% was determined by a re-

Woodville	9,406.64
Sundridge	3,430.73
Gravenhurst	6,849.03
Bracebridge	3,869.49
Beaverton	$24,784.70

C o s t - $80,082.60

p.W. p.12.

The annual rate of 2% was determined by a re-

duction in the cost of power supplied to them during this period.

COPY

has been applied to the following municipalities as a reduction of $80,082.60 in the removal reserve which the rate of 2% was made effective from the inception of the system to October 31st, 1919, and this adjustment result-

The accounts of the Commission were so adjusted

removal rate from 3½% to 2%, while the interest rate of 4% remained unchanged.

advice of its engineers. The Commission reduced the annual

the reserve to October 31st, 1919. During 1920, upon the better with interest at 4% per annum on the balance of

of an annual charge of 3½% on the capital investment, to-

HYDRO-ELECTRIC INQUIRY COMMISSION
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sufficient to form in thirty years with interest at 4 per cent. per annum, a sinking fund for the repayment of the advances made by Ontario under this Act for the payment of the cost of the works", and under the second main paragraph of the same section "a municipal corporation which has entered into or shall hereafter enter into a contract with the Commission for a supply of power may be relieved by the Commission from payment of any sum on account of the sinking fund account for the first five years, during which payments are made to the Commission by the corporation, under such contract, and the amounts required from such corporation on sinking fund account shall be payable during the then next ensuing thirty years".

COPY

All municipalities on the Wasdell's System were relieved from payment of sinking fund for a period of five years and from the dates that sinking fund collections were started to October 31st, 1921, the amounts provided and included as a part of the cost of power, together with interest are as follows:

Municipalities	$5,186.02
Severn System	3,337.11
Companies	2,434.52
Rural Lines	611.43
Interest at 4%	211.86
Total -	$11,780.94

P.W. p.14 & 15.

The above shows the aggregated amount of sinking fund collectible at October 31st, 1921, from the

Hydro-Electric Inquiry Commission
Copy for Enclosure to

sinking fund collectible at October 31st, 1921, from the

The above shows the aggregated amount of

Municipalities	$3,166.05
Power System	3,837.13
Companies	2,756.88
Rural Lines	611.40
Interest at 4%	711.88
Total -	$11,103.34

P.M.
p.16
& 18.

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HYDRO-ELECTRIC INQUIRY COMMISSION
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five municipalities which had taken power for six years or longer, the initial charge being made in the sixth year's power cost.

Mr. Francis points out in his report on the Wasdell's System that the question of the Severn System being charged with sinking fund, and so, theoretically at least, obtaining an equity in the Wasdell's System should be studied and the accounts adjusted if necessary. WJF. p.40.

The sinking fund reserve of the Wasdell's System at October 31st, 1921, included the following amounts as applying to power supplied the Severn System:

COPY

Year ending October 31st, 1920	$1,788.52
Year ending October 31st, 1921	1,548.59
T o t a l -	$3,337.11

During the year 1920, power was furnished the Severn System at a fixed rate of $25.00 per horse-power. After providing for sinking fund of $1,788.52 on the portion of works used in the generation and transmission of such power, the Wasdell's System incurred a loss of $2,295.00. It will, therefore, be noted that the flat rate of $25.00 per horse-power was inadequate to provide for operating expenses and fixed charges inclusive of sinking fund in this year.

In the year 1921, when the Severn System was supplied power at actual cost, and paid as a part of such cost sinking fund charges in the amount of $1,548.59, the

HYDRO-ELECTRIC INQUIRY COMMISSION
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cipe municipalities which had taken power for six years or longer. The initial charges being made in the sixth year's power cost.

Mr. Treesie points out in his report on the Wandell's System that the question of the Severn System being charged with sinking fund, and he, theoretically at least, obtained an equity in the Wandell's System should be granted and the accounts adjusted if necessary.

p.50. 91%.

The sinking fund reserve of the Wandell's System at October 31st, 1921, included the following amounts as applied to power supplied the Severn System

Year ending October 31st, 1921 $1,866.89
Year ending October 31st, 1920 $1,789.22

T o t a l - $3,656.11

During the year 1922, power was furnished the Severn System at a fixed rate of $22.00 per horse-power. After providing for sinking fund of $1,798.22 on the portion of works used in the generation and transmission of such power, the Wandell's System incurred a loss of $3,288.00. It will, therefore, be noted that the flat rate of $32.00 per horse-power was inadequate to provide for operating expenses and fixed charges inclusive of sinking fund in this year.

In the year 1923, when the Severn System was supplied power at actual cost, and paid as a part of such cost sinking fund charges in the amount of $1,846.89, the

HYDRO-ELECTRIC INQUIRY COMMISSION
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question arises whether or not the municipalities on the Severn System are acquiring an interest in the Wasdell's System with the payment of sinking fund.

In this same connection our Auditors have made the following comment:

"Equity of System Receiving Power or System Furnishing Power

Where there is an interchange of power between Systems and the charge for such power is on the basis of cost the consumers on the lines of the system receiving and using the power will be in the position of paying for and acquiring equities in the plant and property of the system where the power is generated to the extent that provisions for sinking funds are made." P.W. p.86

COPY

Reserve for Contingencies

The Commission established a reserve for contingencies to provide for losses not arising at regular intervals or not wholly applicable to the period in which they were incurred.

The reserve is built up by:

(a) Charges to the municipalities, to sundry customers and to the Severn System at the rate of 25¢ per horsepower per annum included as part of the cost of power delivered to them. P.W. p.16

(b) Profit from the sale of equipment.

(c) Interest at 4% per annum.

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question arises whether or not the municipalities on the Severn System are acquiring an interest in the Wasdell's System with the payment of sinking fund.

In this same connection our Auditors have made the following comment:

"Equity of System Receiving Power or Having Available Power

There then is an interchange of power between Systems and the charge for such power is on the basis of cost the consumers on the lines of the system receiving and using the power will be in the position to pay for the acquiring equities in the plant and property of the system which the power is generated to the extent that provisions for sinking funds are made." P.34

Reserve for Contingencies

The Commission established a reserve for contingencies to provide for losses not arising at regular intervals or not wholly applicable to the period in which they were incurred.

The reserve is built up by:

(a) Charges to the municipalities, to satisfy customers and to the System at the rate of $5% for Horsepower per annum installed as part of the cost of power delivered to them. P.M. p.16

(b) Profit from the sale of equipment.

(c) Interest at 4% per annum.

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At October 31st, 1921, the balance in the reserve account was $240.64 made up as follows:

Amounts included as part of the cost of power delivered -		
To Municipalities	$374.66	
To private companies	74.23	$ 448.89
Severn System - proportionate charge on power purchased		653.33
Net profit on sales of aluminum, cable and sundry equipment		12,214.70
Interest at 4% per annum		1,625.49
Total Credits		$15,342.41
Deduct		
Expenditures in 1920 applied against the cost of stringing aluminum cable on a large portion of the system	$14,519.07	
To meet losses in 1920 on power sold to private companies	582.70	$15,101.77
Balance as at October 31st, 1921		$ 240.64

COPY

It is the opinion of our Consulting Engineer that the reserve should be built up by increasing the annual allowance for contingencies until the reserve reaches $5,000.00 or $10,000.00 when the rates can be readjusted to suit conditions which have been found after several further years of operation.

WJF. p.40.

Accounts with Municipalities

Accounts with municipalities are divided by the Commission as follows:

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COPY

Balance as at October 31st, 1923 $ 840.84

Paid to private companies	386.72	318,709.77
To meet losses in 1920 on power portion of the system		314,819.07
Operating the Toronto Electric aluminum cable on a large scale		
Net profit on sales of aluminum, cable and sundry equipment		12,634.70
Interest at 6% per annum		1,819.49
Total Credits		$18,363.41

Deduct

Expenditure in 1923 on		
Operating the Toronto Electric aluminum cable on a large portion of the system		314,819.07
To meet losses in 1920 on power sold to private companies	386.72	318,709.77
Balance as at October 31st, 1923		$ 840.84

It is the opinion of our Consulting Engineer that the reserve should be built up by increasing the annual allowance for contingencies until the reserve reaches $2,000.00 or $10,000.00 when the rates can be readjusted to suit conditions which have been found after several fairly years of operation.

p.40.
312.

Accounts with Municipalities

Accounts with municipalities are divided by the Commission as follows:

As at October 31st, 1923, the balance in the reserve account was $340.64 made up as follows:

Amounts included as part of the cost of power delivered -

To Municipalities	$574.66	
To private companies	74.82	(449.84
System System - proportionate charge on power purchased		108.82
Net profit on sales of aluminum, cable and sundry equipment		12,634.70
Interest at 6% per annum		1,819.49
Total Credits		$18,363.41

Deduct

Expenditure in 1923 on		
Operating the Toronto Electric aluminum cable on a large portion of the system		314,819.07
To meet losses in 1920 on power sold to private companies	386.72	318,709.77
Balance as at October 31st, 1923		$ 840.84

It is the opinion of our Consulting Engineer that the reserve should be built up by increasing the annual allowance for contingencies until the reserve reaches $2,000.00 or $10,000.00 when the rates can be readjusted to suit conditions which have been found after several fairly years of operation.

p.40.
312.

Accounts with Municipalities

Accounts with municipalities are divided by the Commission as follows:

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(a) Power Accounts Receivable.

(b) Due by or to municipalities in respect of the cost of power furnished them as determined under the Power Commission Act.

(a) Power Accounts Receivable

At October 31st, 1921, the balance of power accounts receivable amounted to $6,665.12. These accounts represent unpaid balances in respect of interim power bills which are paid currently by the municipalities, and were all paid prior to September 20th, 1922, the date on which these accounts were examined by our Auditors. P.W. p.17 & 18.

COPY

(b) Due by Municipalities in respect of the cost of power

At the close of each fiscal year, the interim power bills rendered monthly are adjusted to meet the operating costs of the system, as provided by the Power Commission Act.

It does not appear to be the practice of the municipalities to pay in cash these additional charges, but instead the Commission increases the interim rates in subsequent periods and thereby reduces the accumulated deficits of prior periods.

Regarding the payment of these deficits, section 23a of the Power Commission Act provides that

> "The Commission may from time to time during the first three years after any municipality shall first begin to take power from the Commission extend the time for payment of the sums payable by any municipality. . . . "

Hydro-Electric Inquiry Commission
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(a) Power assurance Receivable.

(b) Due by or to municipalities in respect of the cost of power furnished or to be furnished by Commission under the Power Commission Act.

(a) Power assurance Receivable

At October 31st, 1921, the balance of power assurance receivable amounted to $3,668.12. These assurance represent ample balances in respect of interim power bills which are paid currently by the municipalities, and were all paid prior to September 30th, 1922, the date on which these accounts were examined by our Auditors.

(b) Due by Municipalities

In respect of the cost of power

As the close of each fiscal year, the interim power bills rendered monthly are adjusted to meet the operating costs of the system, as provided by the Power Commission Act.

It does not appear to be the practice of the municipalities to pay in cash these additional charges, but instead the Commission increases the interim rates in subsequent periods and thereby reduces the accumulated deficits of prior periods.

Referring the payment of these deficits, section 22a of the Power Commission Act provides that

"The Commission may from time to time during the first three years after any municipality shall first begin to take power from the Commission exceed the time for payment of the sums payable by any municipality. . . ."

COPY

P.17 & 18.

HYDRO-ELECTRIC INQUIRY COMMISSION
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Some of the following balances extend back to the first year of operation and beyond the three year limit in which municipalities are allowed to accumulate amounts owing to the Commission in respect of the cost of power. At October 31st, 1921, five of the six municipalities on the system were in default in payment of their power bills. A list of the balances owing by the municipalities on the Wasdell's System at October 31st, 1921, is as follows:

Beaverton	$4,751.99
Brechin	3,680.19
Cannington	3,645.65
Kirkfield	307.02
Sunderland	3,567.46
Woodville	3,145.08
T o t a l -	$19,117.39

COPY

P.W. Ex.4.

Results of Operation

Power is supplied the municipalities on the Wasdell's System on a cost basis as outlined in the Power Commission Act. The cost of such power consists of:-

1. Operating and maintenance expenses.
2. Interest on monies invested in the works of the system.
3. Provision for the renewal of the works.
4. Sinking fund on a thirty year basis to repay the investment in the system.

Power is also supplied the Severn System on a cost basis and the Crushed Stone Company, Limited, at fixed rates. However, up to the fiscal year ending October 31st,

HYDRO-ELECTRIC INQUIRY COMMISSION
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rates. However, up to the first year ending October 31st,
1922, the Dundas Power, Light & Water Commission was a
cost basis and the Dundas Power Company, Limited, at fixed
rates. However, up to the first year ending October 31st,

Power is also supplied the Beaver System on a
basis to repay the investment in the system.

4. Sinking fund on a thirty year basis
on the system.

3. Provision for the renewal of the
works.

2. Interest on monies invested in the
works of the system.

1. Operating and maintenance expenses.

Commission Act". The cost of such power comprises of:-
Wardell's System on a cost basis as outlined in the Power

Power is supplied the municipalities on the

Basis of Operation

Total - $19,117.39

Beaverton	$4,731.39
Brooklin	3,499.79
Cannington	3,653.60
Kirkfield	807.06
Sunderland	3,807.66
Woodville	2,417.89

P.W.
Ex.4.

COPY

A list of the reliances voted by the municipalities on the
system were in default in payment of their power bills.
At October 31st, 1921, five of the six municipalities on
owing to the Commission in respect of the cost of power.
in which municipalities are allowed to accumulate amounts
the first year of operation and beyond the three year limit

HYDRO-ELECTRIC INQUIRY COMMISSION
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1921, the Severn System received power at a flat rate of $25.00 per horse-power.

The operating account of the system for the four years ending October 31st, 1921, is as follows:

P.W. Ex.1 & 1a

Particulars	Year ending October 31st 1918	1919	1920	1921
Revenue				
From Municipalities	$19,974.66	$16,214.76	$21,650.09	$21,588.58
From Severn System	9,125.42	15,508.94	12,416.88	12,363.60
From private companies	-	-	5,097.07	8,440.00
Total Revenue	$29,100.08	$31,725.70	$39,164.04	$42,392.18
Less -				
Operating Expenses	9,018.11	10,680.10	14,732.52	15,369.03
Balance	$20,081.97	$21,045.60	$24,431.52	$27,023.15
Less - Fixed Charges				
Interest	$10,650.73	$11,516.53	$13,526.10	$14,672.10
Provision for Renewals	9,301.89	9,301.79	5,936.36	6,449.28
Provision for Sinking Fund	-	-	5,296.52	5,661.13
Provision for Contingencies	149.35	225.28	253.24	240.64
Total fixed charges	$20,081.97	$21,045.60	$25,014.22	$27,023.15
Loss - transferred to reserve for contingencies			$582.70	
Total horse-power billed	597.4	901.1	910.0	962.5
Cost per horse-power billed	$48.71	$35.21	$43.67	$46.90

COPY

WJP. p.44.

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1921, the Seven Sisters received power at a flat rate of $20.00 per horse-power.

The operating account of the system for the four years ending October 31st, 1921, is as follows:

Particulars	1918	1919	1920	Year ending October 31st 1921	P.M. Mar. 1 to
Revenue					
From Municipalities	$19,974.65	$18,814.75	$21,650.09	$21,869.56	
From Seven Sisters	9,128.42	18,809.94	13,616.89	15,868.60	
From private companies	-	-	8,037.07	8,460.09	
Total Revenue	$29,103.07	$37,724.69	$43,304.05	$46,198.25	
less -					
Operating Expenses	9,018.33	10,850.10	14,728.82	16,693.02	
Balance	$20,084.74	$21,046.80	$28,631.23	$29,029.23	
less - Fixed Charges					
Interest	$10,080.73	$11,816.03	$13,826.10	$14,872.10	
Provision for Renewals	2,301.89	2,301.79	2,818.36	2,849.29	
Provision for Sinking Fund	-	-	2,296.32	2,661.12	
Provision for Contingencies	148.28	858.89	289.84	340.64	
Total fixed charges	$20,084.74	$21,046.80	$29,030.47	$29,029.13	
Loss - transferred to reserve for contingencies				$2832.70	
Total horse-power billed	2274.4		2921.1	3210.0	3258.5
Cost per horse-power billed	$68.73		$238.83	$43.87	$46.30

COPY

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The loss shown above as transferred to the contingency reserve was sustained in supplying power to the Crushed Stone Company, Limited. Losses arising in this connection for 1921 have been charged against the various municipalities on the system. The profits or losses arising from the sale of power to the Severn System have also been applied against the municipalities. These profits or losses will be commented on hereinafter.

The revenue shown in the aforestated operating account includes the final power bills rendered the municipalities to adjust the interim rates to actual cost. The interim rates charged for power failed in the aggregate to meet the actual cost except in the year 1921, when the interim rate exceeded the actual cost of power supplied in the amount of $2,185.00. The deficiency for the remaining three years of the period under review is as follows:

COPY

1918	$8,993.00	
1919	2,490.00	P.W.
1920	1,087.00	p.18.
	$12,570.00	

It will therefore be noted that during the period from 1918 to 1921 inclusive, revenue based on the interim power bills failed in the aggregate to meet operating expenses and fixed charges in the amount of $10,385.00.

The operating accounts from the inception of the system to October 31st, 1919, as stated in the published

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The loss shown above as transferred to the emergency reserve was realized in supplying power to the Dundas Steam Company, Limited. Losses arising in this connection for 1921 have been charged against the various municipalities on the system. The profits or losses arising from the sale of power to the Toronto System have also been applied against the municipalities. These profits or losses will be commented on hereafter.

The revenue shown in the aforementioned operating account including the final power bills rendered the municipalities to adjust the interim rates to actual cost. The interim rates charged for power billed in the aggregate to meet the actual cost except in the year 1921, when the interim rate exceeded the actual cost of power supplied in the amount of $2,168.00. The deficiency for the remaining three years of the period under review is as follows:

1918	$4,933.68	
1919	3,480.00	2.5%
1920	1,287.00	2.5%
	$10,870.00	

It will therefore be noted that during the period from 1918 to 1921 inclusive, revenue based on the interim power bills billed in the aggregate to meet operating expenses and fixed charges in the amount of $10,870.00.

The operating accounts from the inception of the system to October 31st, 1919, as stated in the published

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accounts of the Commission are subject to an adjustment in renewal charges of $20,585.60, of which $7,975.00 exclusive of interest, is applicable to the years 1918 and 1919, and has the effect of reducing the operating costs and fixed charges as shown by the aforestated operating account and also the final costs per horse-power as follows:

	1918	1919	1920	1921
Operating expenses and fixed charges per operating account	$29,100.08	$31,723.70	$39,746.74	$42,392.18
Less - Reduction in Renewal Charges	3,987.00	3,986.00	-	-
Adjusted Costs	$25,113.08	$27,737.70	$39,746.74	$42,392.18
Horse-power billed	597.4	903.1	910.0	962.5
Cost per horse-power billed as adjusted	$42.04	$30.78	$43.67	$46.90

COPY

From the operating account as adjusted, it will be noted that the cost per horse-power billed decreased considerably during 1919 and increased during 1920 and 1921. The following table showing the detailed costs per horse-power billed illustrates in what respect and to what extent the costs have varied:

	1918	1919	1920	1921	
Operation	$6.36	$5.94	$6.71	$8.52	
Maintenance	4.25	1.93	3.92	3.69	WJP. p.44
Overhead & General Expenses	4.50	3.99	5.57	4.77	
Interest	17.82	12.79	14.86	16.25	WHB.
Renewals	8.86	5.88	6.52	7.15	
Sinking Fund	-	-	5.81	6.28	
Contingencies	.25	.25	.28	.26	
	$42.04	$30.78	$43.67	$46.90	

HYDRO-ELECTRIC INQUIRY COMMISSION
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accounts of the Commission are subject to an adjustments in removal charges of $80,000.00, of which $7,978.00 examination of interest, is applicable to the years 1919 and 1919, and has the effect of reducing the operating costs and fixed charges as shown by the aforementioned operating accounts and also the final costs per horse-power as follows:

	1918	1919	1920	1921
Operating expenses and fixed charges per operating accounts	$29,100.08	$21,728.70	$29,768.74	$23,328.10
Renewal Charges less - Reduction in operating accounts	3,897.00	8,888.00	-	-
Adjusted Costs	$33,112.08	$27,737.70	$29,768.74	$23,328.10
Horse-power billed	897.4	908.1	910.0	908.8
Cost per horse-power billed as adjusted	$42.04	$30.78	$43.67	$44.90

COPY

From the operating account as adjusted, it will be noted that the cost per horse-power billed decreased considerably during 1918 and increased during 1920 and 1921. The following table showing the detailed costs per horse-power billed illustrates in what respect and to what extent the costs have varied:

	1918	1919	1920	1921
Operation	$4.39	$2.94	$4.73	$3.82
Maintenance	4.28	1.93	3.93	3.69
Overhead & General				
Expenses	4.30	3.39	3.37	4.77
Interest	17.82	12.79	14.86	13.23
Renewals	6.86	5.85	6.82	7.13
Sinking Fund	-	-	3.91	3.36
Contingencies	.39	.38	.26	.26
	$42.04	$30.78	$43.67	$44.90

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The following is a table of the actual horse-power loads taken by the municipalities as compared with the estimated load upon which the Commission based its estimated cost for supplying power to the municipalities:

Municipality	Date Power was First Taken	Yearly Minimum Load	Yearly Maximum Load	Average Yearly Load to Oct.31/21	P.W. Ex.I. Estimated Load Required.
Beaverton	Oct. 1914	53.5	107.4	78.0	250.0
Brechin	Dec. 1914	30.4	46.6	36.7	50.0
Cannington	Oct. 1914	50.2	81.1	64.4	175.0
Kirkfield	June 1920	13.9	13.9	13.9	50.0
Sunderland	Oct. 1914	24.0	49.5	40.0	80.0
Woodville	Oct. 1914	35.9	57.2	42.8	70.0
T o t a l				275.8	675.0

COPY

From the above it will be noted that estimated loads exceeded the actual average yearly loads by approximately 399.2 horse-power or 144%.

The following is a table of the estimates as submitted to the municipalities on the Wasdell's System as compared with the actual cost of power supplied during the full year periods of operation:

Municipality	Yearly Minimum Actual Cost per H. P.	Yearly Maximum Actual Cost per H. P.	Yearly Average Actual Cost per H. P.	Estimated cost prepared by Hydro	Per cent. of Actual Cost over estimated cost
Beaverton	$20.42	$71.70	$48.92	$27.99	74
Brechin	28.04	93.66	69.69	35.29	97
Cannington	26.86	77.42	53.51	33.95	57
Kirkfield	70.65	70.65	70.65	45.00	57
Sunderland	35.42	94.41	68.28	44.54	53
Woodville	31.79	34.07	63.82	41.91	52

As shown by the foregoing, the actual cost has exceeded the estimated cost in all of the municipalities on the system.

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The following is a table of the actual horse-power loads taken by the municipalities as compared with the estimated load upon which the Commission based its estimated cost for supplying power to the municipalities:

Municipality	Date of First Power	Highest Load to Dec. 31, 1914	Highest Yearly Average Load	Estimated H.P. Required.
Beaverton	Oct. 1914	52.5	107.4	220.0
Brooklin	Dec. 1914	80.4	66.8	80.0
Cannington	Oct. 1914	80.5	81.1	178.0
Kirkfield	June 1910	13.9	12.9	20.0
Orangeville	Oct. 1914	24.0	42.8	60.0
Woodville	Oct. 1914	36.3	27.3	42.8	70.0
Totals				570.0

COPY

From the above it will be noted that estimated loads exceeded the actual average yearly loads by approximately 339.8 horse-power or 146%.

The following is a table of the estimates as submitted to the municipalities on the Mundell's System as compared with the actual cost of power supplied during the full year periods of operation:

Municipality	Cost per H. P. Actual	Cost per H. P. Minimum Maximum	Yearly Average	Yearly Estimated	Per cent. of Actual Cost over estimated cost
Beaverton	$30.42	$71.70	$48.92	$27.39	74
Brooklin	32.05	38.88	60.00	32.32	87
Cannington	26.36	17.42	33.31	32.00	87
Kirkfield	70.62	70.82	70.82	46.00	87
Orangeville	28.42	34.41	28.20	24.84	83
Woodville	31.70	34.07	28.32	41.31	82

As shown by the foregoing, the actual cost has exceeded the estimated cost in all of the municipalities on the system.

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Sale of Power to the Severn System

The following table shows the revenue received by the Wasdell's System from the sale of power to the Severn System, together with the expenses applicable thereto for the four years ending October 31st, 1921 (cents omitted):

	1918	1919	1920	1921	
Revenue	$9,125	$15,509	$12,417	$12,363	
Operating Expenses and fixed charges	12,312	14,920	14,712	12,363	P.W. p.8.
Profit or Loss	$3,187	$589	$2,295	-	
Horse-power billed	382.8	613.4	492.1	423.2	
Cost per horse-power billed	#$25.15	#$25.28	#$25.23	#$29.21	

COPY

\# - Average horse-power billed, reduced by line loss thereby increasing the flat rate of $25.00.

The profits and losses shown above have been credited or charged against the municipalities on the system. It might be well to mention that from the date power was first supplied the Severn System, to October 31st, 1917, a profit of $7,499.00 was realized which when taken into consideration with the profits and losses shown above results in a net profit of $2,606.00 which was credited to the municipalities and resulted in a slight reduction in the cost of power to them over the period from September 1916 to October 31st, 1921.

Sale of Power to Companies

The Commission began supplying power to the

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Sale of Power to the Severn System

The following table shows the revenue received by the Wendell's System from the sale of power to the Severn System, together with the expenses applicable thereto for the four years ending October 31st, 1921 (items omitted):

	1918	1919	1920	1921	
Revenue	$3,123	$12,609	$12,417	$12,382	
Operating Expenses					P.M.
and fixed charges	12,314	14,980	14,132	12,803	P.M.
Profit or Loss	$3,187	$665	$2,285	-	
Horse-power billed	622.8	612.4	592.1	432.2	
Cost per horse-power billed	$4,990.10	$5,290.28	$5,290.28	$5,290.21	

P - Average horse-power billed, reduced by line loss thereby increasing the flat rate of $25.00.

The profits and losses shown above have been credited or charged against the municipalities on the system. It might be well to mention that from the date power was first supplied the Severn System, 30 October 31st, 1917, a profit of $7,499.00 was realized which when taken into consideration with the profits and losses shown above results in a net profit of $2,808.00 which was credited to the municipalities and resulted in a slight reduction in the cost of power to them over the period from September 1918 to October 31st, 1921.

Sale of Power to Dunnville

The commission began supplying power to the

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Crushed Stone Company, Limited, in the fiscal year ending October 31st, 1920, under terms of a contract for a period of five years from April 22nd, 1920, with extension privileges, at a rate of $1.00 per month per horse-power of maximum demand, as a service charge, plus a consumption charge per kilowatt hour on a differential basis.

The following shows the revenue received from the sale of power to the Crushed Stone Company, Limited, with the relative operating expenses and fixed charges for the two years ending October 31st, 1921:

COPY

	1920	1921
Revenue	$5,097.00	$8,440.00
Operating expenses and fixed charges	5,679.00	10,755.00
L o s s	$582.00	$2,315.00

P.W. p.6.

The loss for 1920 was transferred to the contingency reserve, while the loss for 1921 was charged to the various municipalities on the system in proportion to the amounts paid by them in respect of maintenance and certain operating costs of the system.

Rural Lines

At October 31st, 1921, rural lines on the Wasdell's System were operated by Beaverton, Brechin, Sunderland and Woodville.

HYDRO-ELECTRIC INQUIRY COMMISSION
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Dunnville and Woodville.

Waggitt's Dyson were operated by Beaverton, Brechin,

At October 31st, 1921, rural lines on the

Rural Lines

certain operating costs of the system.

the amounts paid by them in respect of maintenance and

the various municipalities on the mileage in proportion to

sinking reserve, while the loss for 1921 was charged to

The loss for 1920 was transferred to the con-

Loss	$888.00	$2,313.00
Operating expenses and fixed charges	8,672.00	10,788.00
Revenue	$8,097.00	$8,460.00
	1920	1921

COPY

p.m.
p.m.

the two years ending October 31st, 1921:

with the relative operating expenses and fixed charges for

the sale of power to the Grassed Stone Company, Limited,

The following shows the revenue received from

charge per kilowatt hour on a differential basis.

maximum demand, on a service charge, plus a consumption

legee, at a rate of $1.00 per month per horse-power of

of five years from April 22nd, 1920, with extension privi-

October 31st, 1920, under terms of a contract for a period

Grassed Stone Company, Limited, in the fiscal year ending

HYDRO-ELECTRIC INQUIRY COMMISSION
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These municipalities collect the revenue, maintain the lines and pay the Commission interest and sinking fund on the investment.

The interest and sinking fund collected on these rural lines for the four years ending October 31st, 1921, are as follows:

	Interest	Sinking Fund	Total
1918	$100.00	$29.03	$129.03
1919	478.54	140.31	618.85
1920	583.29	199.39	782.68
1921	743.60	219.65	963.25
Total	$1,905.43	$588.38	$2,493.81

COPY

Agreements with Orillia

The Commission has two agreements with the Orillia Water, Light & Power Commission covering the purchase and sale of power. One of these agreements is dated December 9th, 1919, and runs for a period of fifteen years. The other agreement dated September 1st, 1922, extends to September 1st, 1923. These agreements are commented on more fully in this report under the heading "General Relations".

A study of the accounts as of October 31st, 1921, shows that these agreements have had no effect on the Wasdell's System as all power sold by it other than to its own consumers has been furnished the Severn System.

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There municipalities collect the revenue, maintain the lines and pay the Commission interest and sinking fund on the investment.

The interest and sinking fund collected on these rural lines for the four years ending October 31st, 1921, are as follows:

	Interest	Sinking Fund	Total
1918	$100.30	$20.03	$120.03
1919	478.84	140.74	619.58
1920	883.39	189.69	1073.08
1921	748.80	279.69	928.39
Total	$1,909.43	$630.09	$2,439.81

COPY

Agreements with Municipalities

The Commission has two agreements with the Orillia Water, Light & Power Commission covering the purchase and sale of power. One of these agreements is dated December 9th, 1912, and runs for a period of fifteen years. The other agreement dated September 1st, 1922, extends to September 1st, 1932. These agreements are commented on more fully in this report under the heading "General Relations".

A study of the accounts as at October 31st, 1921, shows that these agreements have had no effect on the Hydro's System as all power sold by it other than to the one consumer has been furnished the Severn System.

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All accounts relating to the exchange of power between the Commission and Orillia will be included in the report on the Severn System.

POWER DATA

Population Served

The district served by the Wasdell's System is both urban and rural, but the rural lines comprise a larger proportion of the total transmission system than in other systems. Orillia is by far the largest power consumer in the district, but it is not one of the partner municipalities regularly served by the Commission.

COPY

The combined population of the municipalities served by the Wasdell's System is approximately 3,819.

On page 17 of our Consulting Engineer's report is shown a table of market statistics for the year 1921; this table gives in detail the number of consumers in the places served by the Commission, the approximate horse-power billed to each place, the kilowatt hours consumed, and the average horse-power per consumer.

The ratio of consumers to population at the end of 1921 was 24.5 per cent. which compares well with other systems. The general growth in the load and in the number of consumers has been comparatively steady making due allow- WJV. p.18

Hydro-Electric Inquiry Commission
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All questions relating to the exchange of power between the Commission and Orillia will be included in the report on the Severn System.

POWER DATA

Population Served

The district served by the Nanticoke System is both urban and rural, but the rural lines comprise a large proportion of the total transmission system than in other systems. Orillia is by far the largest power consumer in the district, but only one of the partner municipalities regularly served by the Commission.

The combined population of the municipalities served by the Nanticoke System is approximately 8,000.

On page 17 of our General Engineer's report is shown a table of market statistics for the year 1931; this table gives in detail the number of consumers in the places served by the Commission. The approximate horse-power billed to each place, the kilowatt hours consumed, and the average horse-power per consumer.

The ratio of consumers to population at the end of 1931 was 24.8 per cent. which compares well with other systems. The general growth in the load and in the number of consumers has been comparatively steady making due allowance for the depression. p.19 B12.

COPY

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ance for the abnormal conditions following the armistice in November 1918, and the indications are that the demands are still increasing.

Growth of Market and Ultimate Sources of Power Supply

Since the commencement of operations the growth of the system has been fairly steady. The loads on the system were as follows, the figures given being the loads for the months of October in each year:

1915	-	209
1916	-	250
1917	-	275
1918	-	261
1919	-	326
1920	-	452
1921	-	399

COPY

WJF. p.18 & 19.

These figures are the sum of the loads for the various municipalities and do not show the actual peak demands on the system, but they do indicate the growth of the demand for power in the district. It is to be noted that from 1915 to 1921 the load increased approximately 91%.

At the present time the Wasdell's System is loaded to the full capacity of the plant, if the supply of about 400 horse-power to the Severn System is included. If this load be withdrawn from the Severn System and used on the Wasdell's System, it would probably take care of the normal growth of the system for three or four years, but before then the future source of power supply must be considered. If Niagara power is to be used for the Combined

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sidered. It Niagara power is to be used for the Combined
before then the future needs of power supply must be con-
sidered from the system for three or four years, but
the Vaughn's System. It would properly take care of the
this load be withdrawn from the Severn System and used on
about 600 horse-power to the Severn System is involved. It
loaded to the full capacity of the plant. If the supply of

At the present time the Vaughn's System is
from 1918 to 1921 the load increased approximately 21%.
demand for power in the district. It is to be noted that
wards on the system, but they do indicate the growth of the
various municipalities and do not show the actual peak de-

These figures are the sum of the loads for the

1915 - 203
1916 - 280
1917 - 279
1918 - 281
1919 - 326
1920 - 282
1921 - 309

COPY

B 19.
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R19.

Ultimate Capacity of Power Supply

Growth of Market and

Since the commencement of operations the growth of the system has been fairly steady. The loads on the system were as follows, the figures given being the loads for the months of October in each year:

are still interesting.

in November 1919, and the indications are that the demand

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Northern Systems, it would necessitate the building northwards of a number of short tie lines which must be connected to the Wasdell's, Severn and Eugenia Systems through frequency changers, since Niagara power is developed at 25 cycles.

To use power from the French River for the Muskoka System and for the Combined Northern Systems, and possibly for the Nipissing Section and for the northerly portion of the Trent Section of the Central Ontario System, long transmission lines from the French River to Nipissing, and from Nipissing to Muskoka, and from Muskoka to Wasdell's and to the Trent Systems would be required. As all of these systems are operated at 60 cycles, the use of French River power, which is contemplated at 60 cycles, would avoid the use of frequency changing apparatus. The development of the French River sites would depend on the growth of the load on the Combined Northern Systems, and in the North Bay-to-Sudbury district to a sufficient degree to permit of their economical use. If the general power demand continues to increase at a rapid rate, the total economical capacity of the French River sites, which is probably about 20,000 horse-power, might be reached within a comparatively few years, in which case Niagara power would be the only feasible source of supply. From an operating point of view it would be preferable to use power generated at 60 cycles, and avoid the complication of frequency changers. It is understood that the Commission

WJP. p.19.

COPY

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wards of a number of short tie lines which must be connected
to the Wadsell's. Severn and Magenta Systems through fre-
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cycles.

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use of frequency changing apparatus. The development of the
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French River sites, which is probably about 30,000 horse-power,
might be reached within a comparatively few years, in which
case Niagara power would be the only feasible source of supply,
from an operating point of view it would be preferable to use
power generated at 60 cycles, and avoid the complication of
frequency changers. It is understood that the Commission

p.13.
with.

COPY

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contemplates the use of some Niagara power through frequency changers in the near future for the Eugenia System.

If Niagara power be used, or, possibly, power from the Central Ontario System, it might prove desirable to separate a number of the municipalities from the present partnership arrangement on the Wasdell's System and add those municipalities to the Niagara or Central Ontario System, in which case the accounting should take into consideration the re-allocation of the cost of that portion of the system so affected.

COPY

On the other hand, if power be transmitted from the French River, a system of billing for each of the four or five systems affected would have to be developed so as to fairly apportion the costs of the transmitted power. WJF. p.20.

Horse-Power Developed, etc.

On page 24 of our Consulting Engineer's report is shown a table of horse-power developed, consumed, billed, etc., for the years 1914 to 1922, inclusive.

Power Situation

The market for power has been well covered in the district. The density indicates a high percentage of consumers per capita of population. The demand for electricity is apparently still growing and indications are that further sources of power supply must soon be provided. The ultimate WJF. p.50.

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sources of power supply must soon be provided. The highest
is apparently still growing and indications are that Canada
has per capita of population. The demand for electricity p.90.
district. The density indicates a high percentage of com- p.91.
The market for power has been well covered in the

Power Situation

for the years 1912 to 1913, inclusive.
shows a table of horse-power developed, consumed, piled, etc.,
On page 24 of our Consulting Engineer's report is

Horse-Power Developed, etc.

fairly application the cause of the transmitted power.
or five systems affected would have to be developed so as to p.20.
the French River, a system of pitting for each of the four
on the Ottawa River. If power be transmitted from

COPY

re-allocation of the cost of that portion of the system so
which case the accounting should take into consideration the
municipalities to the Niagara or Central Ontario System, in
partnership arrangements on the Hardy's System and add those
to separate a number of the municipalities from the present
from the Central Ontario System, it might prove desirable
If Niagara power be used, or, possibly, power
greatly changers in the near future for the Hydro System.
contemplates the use of some Niagara power through Ren-

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demand for power and the ultimate sources of supply should be considered in the near future, because there are no local power sites which can be developed economically.

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GENERAL RELATIONS

Relations with the Town of Orillia

Previous to 1899 Orillia was obtaining its electrical energy from a steam plant. In 1899 the town decided to use water power for this development and chose a site at Ragged Rapids, on the Severn River, about twenty miles from the town. The town leased the necessary water powers and privileges and under authority obtained from the Provincial Government proceeded with the development. Originally the town had the right to distribute and sell electrical power within a five mile radius of the town, but a subsequent enactment increased this radius to twenty-five miles. The plant was completed after many setbacks in 1902. Owing to the construction of the Severn Division of the Trent Valley Canal by the Dominion Government, the town was asked to move its plant from Ragged Rapids to a new location at Swift Rapids. The Dominion Government undertook to build, at its own expense, a dam at the new site. The new work was proceeded with and was still in course of construction when war broke out. The plant was installed in 1917 at a stated cost of $114,000.00, exclusive of the building and development which were constructed by the Federal Government.

HEPC. Report 1911 p.195

62Vic(2) 1899 Cap.64
2Edw.VII 1902 Cap.53

COPY

WJF. p.13.

WJF. p.14.

In 1914 the Commission instituted a campaign

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GENERAL RELATIONS

Relations with the Town of Orillia

Previous to 1909 Orillia was obtaining its electrical energy from a steam plant. In 1909 the town decided to use water power for this development and chose a site at Jagged Rapids, on the Severn River, about twenty miles from the town. The town leased the necessary water powers and privileges and under authority obtained from the Provincial Government proceeded with the development.

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In 1914 the Commission installed a complete

COPY

ENRO. Report 1911 p.158

Ont.(2) 1909 Ont.64 Rdgm.XII 1908 Ont.88

p.15. 417.

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with the view to absorbing the Orillia System. Negotiations between the Commission and the town went on for some time and various offers were submitted and considered. The final offer of $225,000.00, which did not include the cost of the generators, etc., which had to be subsequently installed, was submitted to the vote of the electors on May 22nd, 1916. The by-law was defeated 79 for and 513 against.

Letter May 23, 1916. HEPC. File 3.301 E.& M. 374-5.

Agreements with Orillia

On December 9th, 1919, an agreement was entered into with the Orillia Commission for a supply of power. This agreement was approved by Order-in-Council, dated April 26th, 1920. This is a reciprocal agreement whereby each of the systems gives the other first call on any surplus of power it has available, and is binding for a period of 15 years from the 1st November, 1916. We are informed by Mr. T. C. James that the Orillia System under this arrangement has available, at most times, 2,000 horsepower for Hydro purposes, and in his estimation this amount will be available for some years to come. It will be seen on perusing Paragraph 6, Sub-section (c) that the Power Commission are "to purchase from the corporation for $10,000.00 with interest at 6 per cent. per annum from 1st November, 1918, that part of the transmission line now owned by the corporation connecting the Big Chute development with the corporation's abandoned plant at Ragged

COPY

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ment with the corporation's shareholed plant at Nagara owned by the corporation connecting the Big Chute development, 1918, that part of the transmission line now $10,000.00 with interest at 6 per cent. per annum from Jan Commission are "to purchase from the corporation for on page 7 paragraph 8, Sub-section (c) that the power will be available for home power to come. It will be seen power for Hydro purposes, and in his estimation this amount this arrangement was available, at most times. 5,000 Horseinformed by Mr. T. C. James that the Ottilia System under a period of 15 years from the 1st November, 1918. We are any surplus of power it was available, and is binding for whereby each of the systems give the other first call on dated April 28th, 1920. This is a reciprocal agreement power. This agreement was approved by Order-in-Council, entered into with the Ottilia Commission for a supply of

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Agreements with Ottilia

On December 7th, 1918, an agreement was

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the sinotove on May 22nd, 1918. The By-law was deferred be subsequently inserted, was submitted to the vote of including the cost of the Generator, etc., which had to sidered. The final offer of $222,000.00, which did not some time and various offers were submitted and considerations between the Commission and the town went on for

R.B.M.
8.301
File
HEPO.
1918.
May 22.
letter
874-B.

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Rapids". The Power Commission subsequently carried out this part of the contract.

In addition to the above, the Power Commission has a subsequent contract with Orillia, dated September 1st, 1922, whereby 800 horse-power at a price of one-quarter cent (¼¢) per kilo-watt hour is reserved for the Power Commission until September 1st, 1923.

Circumstances of Longford Mills Incident

Longford, a very small community, now a Police Village, contains two industries which were desirous of obtaining power - the Longford Quarry Company and a branch of the Standard Chemical Company. The municipality is located about five or six miles from the main transmission lines of the Commission and about the same distance from the main transmission lines of the Orillia Water, Light and Power Commission. In 1915, the above mentioned companies asked for estimates from the Orillia Water, Light and Power Commission and from the Power Commission, who were both very anxious to secure the contracts. The Power Commission held several meetings and made every endeavour to persuade the people to carry the by-law in their favor. Several Orillia financiers had capital invested in the Standard Chemical Company and wished to see the Orillia Water, Light and Power Commission obtain the contracts.

COPY

The result of the vote on the by-law submitted in the township of Rama, June 7th, 1915, was in favor of

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In the township of Keene, June 7th, 1912, was in favor of

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Disagreement at Longford Mills Factory

Longford, a very small community, now a police

village, contains two industries which were desirous of

obtaining power from the Hydro-Electric Power Commission

of the Standard Chemical Company. The municipality in-

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Water, Light and Power Commission obtain the contracts.

COPY

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the Orillia Commission. In spite of this the Power Commission sent engineers to address meetings in the townships of Rama and Mara, through which townships the power lines of the Orillia Commission would have to pass to reach Longford Mills, with a view to persuading these townships to refuse permission for the rights-of-way through the said townships. The Power Commission did all in its power to prevent the Orillia Commission from carrying out the contracts which the Power Commission itself had been refused. Telegrams were sent to the municipalities of Beaverton, Cannington and Woodville in this connection as follows:-

COPY

"June 12, 1915.

Meeting Mara Council Monday. Urge attendance strong deputation to oppose granting Orillia franchise. Your interest in Wasdell's Power System may suffer."

In addition the following letter was sent by the Commission, copies of which were mailed to the municipalities of Woodville, Cannington, Beaverton, Brechin and the townships of Mara, Thorah and Brock:-

"June 17th, 1915.

P.P.B.

Mr. Froman,
Inspecting Trustee,
SUNDERLAND, Ontario.

Dear Sir:- re: Power to Longford Mills

You are undoubtedly now aware of the attempt

Ontario Hydro-Electric Inquiry Commission
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You are undoubtedly now aware of the attempt

Dear Sir:- For Power to Longford Mills

SCHUBRIAND, Ontario.
Inspecting Grounds,
Mr. Brown,
P.P.S.

"June 17th, 1913.

the township of Mara. Uhrab and Breck:-

In addition the following letter was sent by the Commission, copies of which were mailed to the municipalities of Woodville, Canning, Beaverton, Brechin and Sunderland:

"June 12, 1913.

Meeting Mara Council Monday. Urge attendance among deputation to oppose granting Utility franchise. Your interest in Wendell's Power Optics may suffer."

COPY

Beaverton. Canning and Woodville in this connection as follows:-

Mara. Delegates were sent to the municipalities of contracts which the Power Commission itself had been to prevent the Utility Commission from carrying out the said township. The Power Commission did all in its power to secure permission for the right-of-way through the Longford Mills, with a view to persuading these townships of the Utility Commission would Mara to pass to terms of Mara, through which township the power lines mission must engineers to address meetings in the township the Utility Commission. In spite of this the Power Com-

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being made by the Orillia Light and Water Commission to transmit power through Rama and Mara Townships to the Standard Chemical Company, at Longford Mills.

We wish to draw your attention to this matter again, since the Township of Rama on June the 7th passed By-law No. 327 giving the Orillia Water, Light & Power Commission rights through the Township of Rama. This franchise was secured from the Township Council hurriedly and in such a manner that the Township Council was not aware that the interests of other parties were at stake.

We have reason to believe that the Township Council of Rama will reconsider this Byplaw and we suggest that you send a strong deputation to the next meeting of the Rama Township Council for the purpose of showing reasons why said By-law No. 327 should be repealed and rendered null and void.

COPY

We understand that the next meeting of the Rama Township Council is to be held at the pleasure of the Reeve, Mr. Henry Hevener, R.R.#2, Atherley Post Office, and we are writing to suggest that they hold their next Township meeting at their Township Hall at Fawkham Corners on the morning of Wednesday, June 23rd.

Please note that Mr. P. Byrne, Councillor, of Beaverton, has consented to act as local organiser for this matter, and you would do well to communicate with him by 'phone in connection with the hour of meeting.

We might advise that we expect to have a representative at this meeting, and since the Township Councillors of Rama have expressed their ignorance of the Hydro Commission's operation and methods, we ask that you join with our representative and the representatives from the other municipalities on the Wasdells System in taking the Rama Township Council for a visit to our power house at Wasdell's Falls on the date indicated above.

We are certain that if these Councillors are made acquainted with this Commission's aims and duties to the ratepayers they will be willing to reconsider their former action and repeal By-law No. 327.

HYDRO-ELECTRIC INQUIRY COMMISSION

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being made by the Orillia Light and Water Commission to transmit power through Hams and Hare Townships to the Ontario Chemical Company, at Longford Mills.

We wish to draw your attention to this matter again, since the Township of Hams on June 7th passed By-law No. 827 giving the Orillia Water, Light & Power Commission rights through the Township of Hams. This franchise was assented from the Township Council promptly and in such a manner that the Township Council was not aware that the interests of other parties were at stake.

We have reason to believe that the Township Council of Hams will reconsider this By-law and we suggest that you send a strong deputation to the next meeting of the Hams Township Council for the purpose of showing reasons why said By-law No. 827 should be repealed and rendered null and void.

COPY

We understand that the next meeting of the Hams Township Council is to be held at the pleasure of the Reeve, Mr. Henry Stevens, K.B.E., Atherley Post Office, and we are writing to suggest that they hold their next Township meeting at their Township Hall at Fawkham Corners on the morning of Wednesday, June 23rd.

Please note that Mr. P. Byrne, Councillor, of Reservation, has consented to act as local organizer for this motion, and you would do well to communicate with him by 'phone in connection with the hour of meeting.

We might advise that we expect to have a representative at this meeting, and since the Township Councillors of Hams have expressed their ignorance of the Hydro Commission's operation and methods, we ask that you join with our representative and the representatives from the other municipalities on the Vandelia System in taking the Hams Township Council for a visit to our power house at Vandeli's Falls on the date indicated above.

We are certain that if those Councillors are made acquainted with this Commission's aims and duties as the ratepayers they will be willing to reconsider their former action and repeal By-law No. 827.

HYDRO-ELECTRIC INQUIRY COMMISSION
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We are writing to the Township Council of Rama setting forth the reasons why said By-law should be repealed. These are substantially the same reasons as put forward at the meeting held in Brechin on June 14th, when the Orillia Commission attempted to have a By-law passed through the Mara Township Council. As you well know, a stubborn fight was put up by the Orillia Commission to secure entrance into and through the Township of Mara. It was only due to the united efforts and hearty co-operation of the ratepayers and officials on the Wasdells System that the efforts of Orillia to invade your power field were defeated.

We are well aware of the ability and resourcefulness of the Orillia Commission, and while you have secured a victory in Mara, we believe it of vital interest that you should also secure the repeal of the By-law in Rama. It is for this reason that we are writing you at length, requesting your co-operation and attendance at the Rama meeting. We trust that you will not consider this of secondary importance, and will, if possible, send a strong and representative delegation to the meeting in Rama.

COPY

In our letter to you re the meeting in Mara we set forth the reasons for our position. In view of the information secured at the Mara meeting we are able to directly refute some of the statements made by the Orillia Commission and the Chemical Company. We briefly summarize the reasons for your opposition to the Orillia application as follows:-

(1) At the expense of over $226,000.00, loaned by the Province, but secured by our contracts with the municipalities on the Wasdells System, this Commission has erected a modern and first-class generating and transmission system to serve the northern half of Ontario County and the adjoining district to the east.

(2) Contracts with the various municipalities provide that the ratepayers thereof agree to pay all expenses of the system, and, in addition, refund to the Government, with interest, the investment made. The investment is therefore <u>YOUR</u> investment and this Commission is acting only as Trustee in the matter.

(3) In order to make the system feasible it was necessary for the municipalities to pledge themselves to use certain quantities of power. Since the system was only placed in operation last Fall, it has of course been impossible to utilize the full amount of

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We are writing to the Township Council of Esma meeting Toryn the reasons why said By-law should be opposed. These are substantially the same reasons as put forward at the meeting held in Breechin on June 16th, when the Orillia Commission attempted to have a By-law passed through the Nuns Township Council. As you well know, a stubborn fight was put up by the Orillia Commission to secure entrance into and through the Township of Nuns. It was only due to the united efforts and hearty co-operation of the ratepayers and officials on the Wadella System that the efforts of Orillia to invade your power field were defeated.

We are well aware of the ability and resourcefulness of the Orillia Commission, and while you have secured a victory in Nuns, we believe it of vital importance that you should also secure the repeal of the By-law in Esma. It is for this reason that we are writing you at length, requesting your co-operation and attendance at the Esma meeting. We trust that you will not consider this of secondary importance, and will. If possible, send a strong and representative delegation to the meeting in Esma.

In our letter to you re the meeting in Nuns we set forth the reasons for our position. In view of the information secured at the Nuns meeting we are able to directly refute some of the statements made by the Orillia Commission and the Chemical Company. We briefly summarize the reasons for your opposition to the Orillia application as follows:-

(1) As the expense of over $250,000.00, incurred by the Province, but assured by our contracts with the municipalities on the Wadella System, this Commission has erected a modern and first-class generating and transmission system to serve the northern half of Ontario County and the adjoining district to the east.

(2) Consumers with the various municipalities provide that the ratepayers thereof agree to pay all expenses of the system, and, in addition, returned to the Government, with interest, the investment made. The investment is therefore YOUR investment and this Commission is acting only as Trustee in the matter.

(3) In order to make the system possible it was necessary for the municipalities to pledge themselves to use certain quantities of power. Since the system was only placed in operation last fall, it has of course been impossible to utilize the full amount of

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power contracted for. There is therefore a surplus of power available on the system, and since the enterprise is co-operative and mutually helpful to all the municipalities contracting for power the present price of power is high.

To reduce this cost of power it is necessary to increase the amount of power used, making it very necessary that in the districts served every possible power user be secured for your system. We contend that Orillia's attempt to secure a power contract at Longford is a direct invasion of the power field which rightfully belongs to your system. It is very evident, therefore, that it is to the interest of every rate-payer in Northern Ontario County, and even in the adjoining district to the west, which at present or in the future will secure power from the Wasdells System, to oppose the attempt of Orillia to enter the Wasdells field.

COPY

At the meeting held in Brechin on the 14th attended by a large delegation from your district, and also a strong delegation from Orillia, the latter contended that this Commission and yourselves were asking Mara Township to be the "dog in the manger" and refuse Orillia permission to pass through the Township when the Township had nothing to lose. They appealed on the score of sympathy for the Chemical Company, claiming that the Orillia power contracts would mean a large saving - some $5,000 or $8,000 - to the Chemical Company. We wish to directly refute these statements and believe that you will agree with our contentions.

As far as we can find in the By-law passed in Rama Township, and the one submitted to Mara, no compensation was offered to these Townships in any way. The Township of Rama has given the Orillia Commission permission to trim trees along the highways without sufficient protection to the Township's interests. There is nothing in the By-law giving the Township the right to regulate the manner of erecting the transmission line, or any supervision over its type of construction or safety. The By-law is indefinite in that is has no termination.

The Orillia Commission, it is true, agreed to supply users along the proposed route of transmission line at rates current in Orillia, plus 10% ,

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power contracted for. There is therefore a surplus of power available on the system, and since the enterprise is co-operative and mutually helpful to all the municipalities contracting for power the present price of power is high.

To reduce this cost of power it is necessary to increase the amount of power used, making it very necessary that in the distribute served every possible power user be secured for your system. We contend that Orillia's attempt to secure a power contract at Longford is a direct invasion of the power field which rightfully belongs to your system. It is very evident, therefore, that it is to the interests of every ratepayer in Northern Ontario County, and even in the adjoining district to the north, which are present or in the future will secure power from the Wasdells System, to oppose the attempt of Orillia to enter the Wasdells field.

At the meeting held in Brechin on the 14th attended by a large delegation from your district, and also a strong delegation from Orillia, the latter contended that this Commission and Conservative ways making Rama Township to be the "dog in the manger" and reduce Orillia permission to pass through the Township when the Township had nothing to lose. They appealed on the score of sympathy for the Chemical Company, claiming that the Orillia power contracts would mean a large saving - some $3,000 or $6,000 - to the Chemical Company. We wish to sincerely refute these statements and believe that you will agree with our contentions.

As far as we can find in the By-law passed in Rama Township, and the one submitted to Rama, no compensation was offered to those Township in any way. The Township of Rama has given the Orillia Commission permission to trim trees along the highways without sufficient protection to the Township's interests. There is nothing in the By-law fixing the Township the right to regulate the manner of erecting the transmission line, or any subsequent its type of construction or safety. The By-law is indefinite in that is has no termination.

The Orillia Commission, it is true, agreed to supply power along the proposed route of transmission line at rates current in Orillia, plus 10%,

HYDRO-ELECTRIC INQUIRY COMMISSION
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but you will note that the revenue must be sufficient to pay 25% annually on the cost of the line, transformers, etc. Can the residents of Rama Township prove that the possible revenue will meet with these conditions? What protection has Rama Township in this regard,- and how can they force the Orillia Commission to serve farmers and others along the rbute?

The entire By-law is drawn up in favor of Orillia and with no protection whatever to the Township of Rama.

As far as the possible saving in power bill to the Chemical Company is concerned, by buying power from Orillia, we have requested permission to see the proposed Orillia power contract and have been refused. We have reason to believe that the terms and conditions, as well as the price offered by Orillia, are not so good as the terms and conditions offered by this Commission for service from the Wasdells System.

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It should be noted in passing that we have negotiated with the Chemical Company for many months and submitted definite contracts. We have had reason to believe that the terms and prices were agreeable to the Chemical Company and in fact they ordered an electric pump on the strength of this Commission's power quotation.

Our proposed contract with the Chemical Company is public property and the terms and conditions thereof are open to all for inspection and criticism. The same cannot be said of the Orillia contract. The Orillia Commission has been negotiating in private with the Chemical Company, and it is impossible for us to secure from either the Orillia Commission or the Chemical Company the terms and conditions of their proposed contract, so that we may be satisfied that power from Orillia will save anything to the Chemical Company.

In justice to yourselves and to this Commission as your Trustees, we should be in possession of the facts, in order to meet the contention of the Chemical Company that Orillia can sell them power cheaper than we can.

It is evidently realized that the proposed Orillia contract will not bear inspection by our engineers.

HYDRO-ELECTRIC INQUIRY COMMISSION

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Our offer to the Chemical Company was 200 horse-power at $33.00 per horse-power per year, delivered on their ground in Longford at 2300 volts. A ten year contract was submitted on the above terms and a guarantee was asked to secure our investment in a transmission line from Pawkham to Longford, and a substation in Longford.

While possibly Rama Township is not vitally interested in Hydro power at this time as are other Townships to the south, we believe that you can point out to them that if they as a municipality wish to contract for power they may do so and enjoy with the other municipal partners in the scheme all the benefits to be derived from a supply of cheap electric power.

We believe also that the Township of Mara will appreciate that loyalty to Ontario County and the Wasdells District is more necessary than loyalty to Orillia. No one has shown that it would be a hardship on the Chemical Company to take power from this Commission's Wasdells System instead of from Orillia. Until they prove this to our satisfaction we have grave doubts on the matter. They have evidently appealed to the sympathy of the Townships, and particularly to Rama, wherein is located the large plant of the Chemical Company.

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It should also be noted that prominent citizens of Orillia are interested in the Orillia Commission, as well as the Standard Chemical Company of Longford. There is evidently a sympathetic connection between the two parties, which is endeavoring to make an agreement to their mutual advantage and to the serious disadvantage of your investment in the Wasdells System.

As stated earlier in this letter, Mr. P. Byrne of Beaverton will communicate with you in the event of any change in the date for the meeting in Rama Township.

We ask your continued co-operation in this matter, and feel certain that you will again respond.

Very truly yours,

HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO

Chief Engineer."

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HYDRO-ELECTRIC INQUIRY COMMISSION
COPY FOR ENCLOSURE TO

One other to the Dunsmuir Company was 200 horse-power at $23.50 per horse-power per year, delivered on shore proposed in Langford at 2300 volts. A ten year contract was submitted on the above terms and a guarantee was asked to secure our investment in a transmission line from Sanitam to Langford, and a substation in Langford.

While possibly Duncan Township is not visibly interested in Hydro power at this time we are other Townships to the south, we believe that you can point out to them that if they as a municipality wish to contract for power they may do so and enjoy with the other municipal purposes in the scheme all the benefits to be derived from a supply of cheap electric power.

We believe also that the Township of Nanaimo will appreciate that loyalty to Ontario and the Provincial Government is more necessary than loyalty to Canada. No one has shown that it would be a hardship on the Ontario Government to take power from this Commission's Niagara system instead of from Ottawa. Until that is proven we think we have grave doubts on the matter. They have evidently appealed to the sympathy of the Township, and particularly to Mayor, wherein is located the large plant of the Canada Company.

It should also be noted that provinces citizens of Orillia are interested in the Orillia Commission, as well as the Standard Chemical Company of Longford. There is evidently a complaint common-sion between the two parties, which is endeavoring to make an agreement to their mutual advantage and to the serious disadvantage of your Investment in the Nanaimo System.

In stated earlier in this letter, Mr. Byrne of Powertech will communicate with you in the event of any change in the date for the meeting in Nanaimo Township.

We ask your continued co-operation in this matter, and feel certain that you will again respond.

Very truly yours,

HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO

Chief Engineer.

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As the municipality of Longford Mills is obtaining power from the Orillia Water, Light and Power Commission, it is apparent that the efforts of the Power Commission to reverse the vote on By-law No. 527, referred to in the foregoing letter, was not successful.

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S U M M A R Y

In the foregoing sections of this report comment has been introduced from time to time to make the various statements clear. No public hearing was held in reference to this system, consequently the figures quoted and statements made have all been obtained from the Auditor's and Consulting Engineer's reports, the yearly reports and files of the Hydro-Electric Power Commission of Ontario and other official documents having a definite bearing on the System.

COPY

In order to direct attention to the matters on which the Commission may desire to give decisions, hereunder is given a brief review of the points which appear to require special consideration:

Power generated at Wasdell's Falls. ("Historical" - P.7)

The construction of a power development at Wasdell's Falls was authorized by Order-in-Council, April 21st, 1913 and the plant put into operation October 6th, 1914. This was the first generating plant ever constructed by the Commission.

Power Supplied Exceeds Demand. ("Historical" - P.9)

Until 1920 municipalities in the system had contracted for 625 h.p. but the actual demand was only 25% of the capacity of the development, which amounted to 860 h.p. Tie lines were constructed which connect the system with the Severn and Eugenia Systems and thus provide a market for the surplus power.

ONTARIO-ELECTRIC INQUIRY COMMISSION
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SUMMARY

In the foregoing sections of this report comment has been introduced from time to time to make the various statements clear. No public hearing was held in reference to this system, consequently the figures quoted and statements made have all been obtained from the Auditor's and Consulting Engineer's reports, the yearly reports and files of the Hydro-Electric Power Commission of Ontario and other official documents having a definite bearing on the system.

COPY

In order to direct attention to the matters on which the Commission may desire to give decisions, hereunder is given a brief review of the points which appear to require special consideration:

Power generated at Wasdell's Falls. ("Historical" - P.7)

The construction of a power development at Wasdell's Falls was authorized by Order-in-Council, April 21st, 1913 and the plant put into operation October 6th, 1916. This was the first generating plant ever constructed by the Commission.

Power furnished Kaministiquia Company. ("Historical" - P.9)

Until 1920 municipalities in the system had contracted for 6HP h.p. but the actual demand was only 25% of the capacity of the development, which amounted to 880 h.p. The lines were constructed which connect the system with the Beaver and Mugenia dynamos and thus provide a market for the surplus power.

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Undeveloped Power Sites. ("Physical" - P.13)

There are no undeveloped power sites in the Wasdell's System of sufficient capacity to warrant their development. In consequence of this when the demand on the System exceeds the capacity of the present development, additional power must be purchased from some outside source.

Interchange of Power.

The Wasdell's, Severn, Eugenia and Orillia Systems are connected by means of tie lines and surplus power is delivered from one to the other. The interchange of power between these systems appears to be a very satisfactory arrangement and the question arises as to whether it would not be desirable for these three northern systems to be combined into one.

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Capital Investment. ("General Economics" - P. 20)

It is to be noted that capital investment of $335,382.00 is all represented by works and structures, no intangibles being included. It is to be noted that if the extensions contemplated are completed during the current year at the estimated costs, the capital investment will amount to approximately $490,000.00 at the end of the present fiscal year.

Capital Cost per rated H.P. ("General Economics" - P.21)

The capital costs per rated H.P. steadily increased from 1914 to 1921. The original cost was $244.60 per h.p. and as at October 31st, 1921 it was $390.00 per h.p. or an increase

ORO-ELECTRIC INQUIRY COMMISSION
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Undeveloped Power Sites. ("Skyplant" - P.12)

There are no undeveloped power sites in the Vandeli's System of electrical capacity to warrant their development. In consequence of this when the demand on the system exceeds the capacity of the present development, additional power must be purchased from some outside source.

Interchange of Power.

The Vandeli's, Severn, Eugenia and Orillia Systems are connected by means of tie lines and surplus power is delivered from one to the other. The interchange of power between these systems appears to be a very satisfactory arrangement and the question arises as to whether it would not be desirable for these three northern systems to be combined into one.

Capital Investment. ("General Economics" - P. 20)

It is to be noted that capital investments of $888,888.00 is all represented by works and structures, no intangibles being included. It is to be noted that if the extensions contemplated are completed during the current year as the petitioner says, the capital investment will amount to approximately $900,000.00 at the end of the present fiscal year.

Capital Cost per rated H.P. ("General Economics" - P.21)

The capital costs per rated H.P. steadily increased from 1914 to 1921. The original cost was $144.60 per H.P. and on October 31st, 1921 it was $200.00 per H.P. or an increase

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of approximately 60%.

Reserve for Renewals. ("General Economics" - P. 22)

Originally the reserve for renewals was provided by including in the cost of power an annual charge of 3½% on the capital investment. In 1920 this was reduced to 2% retro-active to the inception of the system, resulting in a reduction and a credit to the power users of $20,585.60. The amount in the renewal reserve as at October 31st, 1921, amounted to $38,973.75.

Sinking Fund. ("General Economics" - P. 23).

Reserve for sinking fund has been provided for in the cost of power to the municipalities in the Wasdell's System in accordance with the Power Commission Act, to form in thirty years with interest at 4%, the amount of capital invested.

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During the year 1920 power was furnished the Severn System at a rate of $25.00 per h.p. and after providing a sinking fund in the amount of $1,768.52 out of this revenue the Wasdell's System incurred a loss of $2,295.00. In the year 1921 power was supplied the Severn System at actual cost which included sinking fund charges in the amount of $1,548.49. The question immediately arises as to whether or not the municipalities on the Severn System are acquiring an interest in the Wasdell's System on account of the payment of sinking fund. In theory at least, it would appear that such is the case and if the interchange of power is to continue it would appear necessary that the three northern system be unified

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Reserve for Renewals. ("General Economics" - P. 28)

Originally the reserve for renewals was provided by including in the cost of power an annual charge of 8½% on the capital investment. In 1920 this was reduced to 4½ pro-rata to the imposition of the system, resulting in a reduction and a credit to the power users of $20,222.80. The amount in the renewal reserve as at October 31st, 1921, amounted to $23,978.72.

Sinking Fund. ("General Economics" - P. 29).

Reserve for sinking fund has been provided for in the cost of power to the municipalities in the Beauhoi's System in accordance with the Power Commission Act, to run in thirty years with interest at 4%, the amount of capital invested.

During the year 1920 power was furnished the Dover System at a rate of $48.00 per H.P. and after providing a sinking fund in the amount of $1,708.32 out of this revenue the Beauhoi's System incurred a loss of $2,222.00. In the year 1921 power was supplied the Dover System at actual cost which included sinking fund charges in the amount of $1,850.48. The question immediately arises as to whether or not the municipalities on the Dover System are acquiring an interest in the Beauhoi's System on account of the payment of sinking fund. In theory at least, it would appear that such is the case and if the interchange of power is to continue it would appear necessary that the three municipal systems be united

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in some manner or that the statutory provisions with respect to sinking fund be changed in order that the question of equity may be more clearly defined than at present.

Reserve for Contingencies. ("General Economics" - P.26)

In addition to an annual charge of 25/ per h.p. on the average amount of power supplied and interest thereon at 4% per annum, profits from the sale of certain equipment have been included in this reserve. As at October 31st, 1921, the credits to the reserve amounted to $15,342.41, but the expenditures made and the losses incurred up to that date amounted to $15,101.77 leaving a small balance of $240.64 to the credit of this account. Our Consulting Engineer is of the opinion that the reserve should be built up until it reaches $5,000 or $10,000, and power rates then adjusted to suit conditions.

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Accounts of Municipalities. ("General Economics" - P.28)

(a) The balance of power accounts receivable as at October 31st, 1921 amounted to $6,665.12. These were all paid prior to September 20th, 1922.

(b) As at October 31st, 1921 there was an accumulated debit balance amounting to $19,117.39 against six municipalities in the system. As at this date, under the provisions of Section 23a of the Power Commission Act, five of the six municipalities on the system were in default of the payment of their power bills inasmuch as some of the balances due extend back to the first year of operation and beyond the

ORO-ELECTRIC INQUIRY COMMISSION
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extend back to the first year of operation and beyond the
of their power bills known to some of the customers due
municipalities on the system were in default of the payment
section 25a of the Power Commission Act, five of the six
tion in the system. As at this date, under the provisions of
debit balance amounting to $19,119.38 against six municipal-
(b) As at October 31st, 1921 there was an accumulated
paid Merlow to September 30th, 1922.

(a) The balance of power accounts receivable as at
October 31st, 1921 amounted to $4,665,12. These were all

Accounts of Municipalities. ("General Economies" - P.29)

unit conditions.
amounted to $16,000 or $19,000, and power rates then adjusted to
reserve $8,000 or $10,000, and power rates then adjusted to
of the opinion that the reserve should be built up until it
to the credit of this account. Our Consulting Engineer is
amounted to $16,703.79 leaving a small balance of $240.64
expenditures made and the losses incurred up to that date
the credits to the reserve amounted to $16,962.41, but the
been included in this reserve. As at October 31st, 1921,
at 4% per annum, profits from the sale of surplus equipment
on the average amount of power supplied and interest thereon

Reserve for Depreciation. ("General Economies" - P.24)

In addition to an annual charge of 15% per H.P.
tenant to alarity may be more clearly defined than at present.
respect to alarity fund be changed in order that the provi-
in some manner or that the statutory provisions with

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three-year limit as authorized by the Act.

Results of Operation.

The operating accounts of the system show that the interim rates charged for power failed in the aggregate to meet the actual cost except in the year 1921 when the interim rate exceeded the actual cost of power supplied in the amount of $2,185.00. The deficiency for the other periods by years is as follows:

1918	-	$8,993.00
1919	-	2,490.00
1920	-	1,087.00
Total	-	$12,570.00

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It will be noted therefore, that during the period from 1918 to 1921 inclusive, revenue based on the interim power bills failed in the aggregate to meet operating expenses and fixed charges in the amount of $10,385.00.

Power Costs. ("General Economics" - P.32)

The cost of power based on the horse-power billed in accordance with conditions after adjustment was made in renewal rates, increased from $42.04 per h.p. in 1918 to $46.90 per h.p. in 1921, or an increase of approximately 10% during that period.

Estimated Power Loads compared with Actual Power Loads. ("General Economics" - P.33).

For the six municipalities on the System, the estimated power requirements was 675 h.p. The average yearly

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three-year limit as authorized by the Act.

Results of Operation.

The operating accounts of the system show that the interim rates charged for power failed in the aggregate to meet the actual cost except in the year 1921 when the interim rate exceeded the actual cost of power supplied in the amount of $2,188.00. The deficiency for the other periods is as follows:

1918	$ 22,022.00
1919	3,490.00
1920	1,087.00
Total	$26,599.00

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It will be noted therefore, that during the period from 1918 to 1921 inclusive, revenue based on the interim power bills failed in the aggregate to meet operating expenses and fixed charges in the amount of $10,588.00.

Power Costs. ("General Economics" - P.32)

The cost of power based on the horse-power billed in accordance with conditions after adjustment was made in renewal rates, increased from $42.04 per H.P. in 1918 to $46.30 per H.P. in 1921, or an increase of approximately 10% during that period.

Metered Power Loads compared with Actual Power Loads.
("General Economics" - P.33)

For the six municipalities on the System, the estimated power requirements was 875 H.P. The average yearly

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load amounted to only 275.8 h.p., thus it will be seen that the estimated loads exceed the actual average yearly loads by approximately 400 h.p. or in other words estimated loads were 144% in excess of the actual demands.

Comparison of Estimated Cost per h.p. with Actual Cost per h.p.

The actual cost per h.p. has exceeded the estimated cost in all of the municipalities on the system. The lowest estimated price per h.p. submitted was $27.99 and the highest was $45.00. The estimated costs have been exceeded from a minimum of 52% in the case of the municipality of Woodville to a maximum of 97% in the case of the municipality of Brechin.

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Sale of Power to Severn System. ("General Economics"-P.34)

By the sale of power to the Severn System, the Wasdell's System has experienced a net profit of $2,606.00. This amount was credited to the municipalities and resulted in a slight reduction in the cost of power.

Sale of Power to Companies. ("General Economics" - P.34)

By the sale of power to the Crushed Stone Co. Limited, a loss of $582.00 was experienced in 1920, and a loss of $2,315.00 in 1921, the loss for 1920 was transferred to the contingency reserve and the loss in 1921 was charged to the various municipalities in the System in the cost of power.

PRO-ELECTRIC INQUIRY COMMISSION
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load amounted to only 272.8 h.p., thus it will be seen that the estimated loads exceed the actual average yearly loads by approximately 600 h.p. or in other words estimated loads were 166% in excess of the actual demands.

Comparison of Estimated Cost per h.p. with Actual Cost per h.p.

The actual cost per h.p. has exceeded the estimated cost in all of the municipalities on the system. The lowest estimated price per h.p. symbolic was $27.99 and the highest was $45.00. The estimated costs have been exceeded from a minimum of 62% in the case of the municipality of Woodville to a maximum of 267% in the case of the municipality of Bracebridge.

Sale of Power to Power Engine. ("General Economics"-X.84)

By the sale of power to the Severn System, the Wandell's System has experienced a net profit of $3,606.00. This amount was credited to the municipalities and resulted in a slight reduction in the cost of power.

Sale of Power to Companies. ("General Economics" - X.84)

By the sale of power to the Pyrated Stone Co. Limited, a loss of $882.00 was experienced in 1920, and a loss of $2,312.00 in 1921, the loss for 1920 was transferred to the contingency reserve and the loss in 1921 was charged to the various municipalities in the System in the cost of power.

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Agreement with Orillia Water, Light & Power Commission.

While there is a reciprocal agreement with the Town of Orillia for the interchange of power, the Wasdell's System has not received power from Orillia nor has it supplied power to that town, surplus power from this development being furnished the Severn System.

Population Served and Growth of Market.

The combined population of all municipalities served by the Wasdell's System at October 31st, 1921, was approximately 3,819. The ratio of consumers to population as at October 31st, 1921 was about 24.5%, which compares well with other systems. Since the commencement of operations, the growth of the system has been fairly steady. Commencing with a load of 209 h.p. in October 1915 there has been an increase, until at October 1921 the load amounted to 399 h.p. or an increase of approximately 91%.

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Future Sources of Power.

Taking into account 400 h.p. sold by the Wasdell's System to the Severn System, the generating plant is fully loaded. If the sale of power to the Severn System is discontinued, the energy thus made available will probably take care of the normal growth of the system for a period of three or four years. The Commission must, at an early date consider future sources of power for the system, and definite consider-

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Agreement with Orillia Waterworks, Light & Power Commission.

While there is a provisional agreement with the Town of Orillia for the interchange of power, the Vaudali's System has not received power from Orillia nor has it supplied power to that town, surplus power from this development being furnished the Severn System.

Population Served and Growth of Revenue.

The combined population of all municipalities served by the Vaudali's System at October 31st, 1921, was approximately 5,619. The ratio of consumers to population as at October 31st, 1921 was about 24.9%, which compares well with other systems. Since the commencement of operations, the growth of the system has been fairly steady. Commencing with a load of 209 h.p. in October 1918 there has been an increase, until at October 1921 the load amounted to 397 h.p. or an increase of approximately 91%.

Future Sources of Power.

Taking into account 600 h.p. sold by the Vaudali's System to the Severn System, the generating plant is fully loaded. If the sale of power to the Severn System is discontinued, the energy thus made available will probably take care of the normal growth of the system for a period of three more four years. The Commission must, at an early date consider future sources of power for the system, and definite consider-

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ation will have to be given to the possibility of acquiring privately owned developments in the district, in order that transmission lines and other services will not be duplicated. An alternate procedure to the acquisition of privately owned developments would be the introduction of power from the Niagara System, which would involve considerable expenditure on frequency changers. As in other northern systems, the possibility of introducing power from developments on the French River appears to be a possible solution of the problem of power supply, and would not necessitate expense in the installation of frequency changers.

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Relations with the Town of Orillia.

Though repeated efforts were made by the Commission to obtain control of the development operated by the Orillia Water, Light & Power Commission, this municipality, which was one of the pioneers in municipal control of electric service in the Province of Ontario, and which operated a hydro-electric plant in 1901, four years before the incorporation of the Hydro-Electric Power Commission, has consistently refused to become a partner with other municipalities in the Wasdell's System. While not having supplied power to the Wasdell's System they have however, under working agreements with the Commission, supplied power to relieve shortages on the Eugenia and Severn Systems.

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Relations with the Town of Trenton.

Though repeated efforts were made by the Commission to obtain control of the development operated by the Trenton Light & Power Commission, this municipality, which was one of the pioneers in municipal control of electric service in the Province of Ontario, and which operated a hydro-electric plant in 1903, four years before the incorporation of the Hydro-Electric Power Commission, has consistently refused to become a partner with other municipalities in the Niagara System. While not having supplied power to the Niagara System they have however, under certain agreements with the Commission, supplied power to relieve shortages on the Eugenia and Severn Systems.

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Circumstances of Longford Mills Incident.

It is arguable that the Commission in their endeavors to reverse the by-law permitting the construction of transmission lines by the Orillia Water, Light & Power Commission to serve the Longford Quarry and the Standard Chemical Co., acted unfairly toward the municipality of Orillia and the companies with whom Orillia had an agreement for the supply of power. The Commission's letter quoted in full speaks for itself and indicates to what limits the Commission went in order that the By-law might be upset. The Commission undoubtedly would find justification for their action in saying that, acting as the trustees for the municipalities, it was their duty to obtain the contracts with those companies so as to increase sales of power. On the other hand it is questionable if a Commission operating practically as a Department of the Government should go to such extreme limits in interfering with the interests of private companies and in this case the interests of a Municipal Corporation. Orillia is in rather a unique position in that it enjoys none of the benefits of Government financial assistance in promoting its power project, yet must assume its proportion of responsibility for the large advances and guarantees made in respect of Hydro-Electric undertakings.

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Hydro-Electric Inquiry Commission
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Exhibit

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Discussions of Municipal Utility Problems.

It is arguable that the Commission in their endeavors to reverse the by-law permitting the construction of transmission lines by the Cedilia Water, Light & Power Commission to serve the Longford Quarry and the Standard Chemical Co., acted unfairly toward the municipality of Orillia and the corporation with whom Orillia had an agreement for the supply of power. The Commission's letter quoted in full appears for itself and indicated to what limits the Commission went in order that the by-law might be upset. The Commission undoubtedly would find justification for their action in saying that, acting as the trustees for the municipalities, it was their duty to obtain the contracts with these companies so as to increase sales of power. On the other hand it is questionable if a Commission operating practically as a Department of the Government should go to such extreme limits in interfering with the interests of private companies and in this case the interests of a Municipal Corporation. Orillia is in rather a unique position in that it enjoys some of the benefits of Government financial assistance in promoting its power project, yet must assume its proportion of responsibility for the large advances and guarantees made in respect of Hydro-Electric undertakings.

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HYDRO-ELECTRIC INQUIRY COMMISSION
COPY FOR ENCLOSURE TO

A D D E N D A

It has recently been brought to our attention that the Commission has made substantial reductions in the renewal rates charged in various systems and that such reductions have been made retroactive to the date of first operation.

In connection with this change, Mr. Brown of Messrs. Price, Waterhouse & Company has submitted a memorandum which in part reads as follows:

COPY

Memorandum re Reduction of Renewal Rates on the Wasdell's Falls System.

"On December 20th, 1922, the Commission passed the following Minute reducing the renewal rates on the Wasdell's Falls System:

> 'The Chief Engineer having recommended a revised depreciation rate, calculated on the basis of the life of the equipment, also having advised that this matter had been taken up with Mr. Francis and approved, it was decided that the depreciation rate for Wasdell's System be fixed at 1.5%, and that this rate be made retroactive to date of first operation.'

The rate used by the Commission was 2 per cent. and this revision resulted in the reduction of the rate of .5 per cent.

I have been informed by the Hydro-Electric Power Commission that the effect of this revision has resulted in a reduction in the renewal reserve of $10,578.06, of which $5,500.76 has been applied as a credit to the munici-

FOR ENCLOSURE TO
RO-ELECTRIC INQUIRY COMMISSION

A P P E N D I X

It has recently been brought to our attention that the Commission has made substantial reductions in the renewal rates charged in various mixtures and that such reductions have been made retrospective to the date of first operation.

In connection with this change, Mr. Brown of Messrs. Price, Waterhouse & Company has submitted a memorandum which in part reads as follows:

Memorandum re Application of Renewal Rates of the Wendell's Falls System

"On December 30th, 1922, the Commission passed the following Minute reducing the renewal rates on the Wendell's Falls System:

'The Chief Engineer having recommended a revised depreciation rate, calculated on the basis of the life of the equipment, also having advised that this matter had been taken up with Mr. Francis and approved, it was decided that the depreciation rate for Wendell's System be fixed at 1.8%, and that this rate be made retrospective to date of first operation.'

The rate used by the Commission was 3 per cent. and this revision resulted in the reduction of the rate of .3 per cent.

I have been informed by the Hydro-Electric Power Commission that the effect of this revision has resulted in a reduction in the renewal reserve of $10,272.05, of which $2,300.76 has been applied as a credit to the munic-

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palities, and $5,077.30 as an addition to the contingency reserve. The amount of $5,500.76 credited to the municipalities has the effect of reducing slightly the cost of power to them during the entire period of operation to October 31st, 1921, and would have the effect of reducing the balances owing by them at October 31st, 1921, to that extent.

The operating figures shown in the report are of course subject to revision especially the annual cost per horse-power.

Our Consulting Engineer has recommended that the contingency reserve should be increased to $5,000.00 or $10,000.00. The balance at October 31st, 1921, or approximately $240.00 together with the addition in the amount of $5,077.30 transferred from the renewal reserve will bring the reserve up to approximately Mr. Francis' minimum recommendation.

COPY

Mr. Guilfoyle has pointed out the necessity of giving effect to the adjustments in reports made by this Commission as it changes the results of operation to some extent."

. . . . . .

In view of the instructions given no attempt has been made to recast the figures in order that they may conform with the changes recently made, but it is pointed out that in reporting to the Government some reference should be made to the reduction that has been made in the renewal reserve account.

RO-ELECTRIC INQUIRY COMMISSION
FOR ENCLOSURE TO

extent."

Commission as it appears the result of observation to some giving effect to the adjustments in report made by this

Mr. Quilty has pointed out the necessity of recommendation.

the reserve up to approximately Mr. Francis' minimum re- of $8,077.30 transferred from the general reserve will bring ximately $340.00 together with the addition in the amount $10,000.00. The balance at October 31st, 1921, or approx- contingency reserve would be increased to $8,000.00 or

Our Consulting Engineer has recommended that the base-board.

course employed to revision estimating the annual cost per

The operating figures shown in the report are of extent.

the balances owing by them at October 31st, 1921, to that October 31st, 1921, and would have the effect of reducing power to them during the entire period of operation to Hamilton has the effect of reducing slightly the cost of reserve. The amount of $8,800.76 credited to the municipalities, and $8,077.30 as an addition to the contingency

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In view of the instructions given no attempt has been made to recast the figures in order that they may conform with the changes recently made. But it is pointed out that in reporting to the Government some reference should be made to the reduction that has been made in the general reserve account.